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Perception and Production of English Attitudes by Adult Russian Learners of English

by

Martha Claire Gibson ©

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled PERCEPTION AND PRODUCTION OF ENGLISH ATTITUDES BY ADULT RUSSIAN LEARNERS OF ENGLISH submitted by MARTHA CLAIRE GIBSON in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in PSYCHOLINGUISTICS.

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Perception and Production of English Attitudes by Adult Russian Learners of English

The present research investigates the impact of an 'intonational foreign accent' on the correct production and perception of six English attitudes *(Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical)*. Five experiments determine to what extent this intonational foreign accent can be blamed on differences in Russian and English attitudes at the conceptual level, the prosodic level, or on a combination of the two.

The first stage was a comparison of the attitudes at the conceptual level by assessing their degree of 'translatability' across Russian and English. Native Russian and English speakers were asked to rate how similar each attitude was to every other, and the potential for confusion among them in everyday conversation. Results show that Russian and English place the semantic concepts in very similar relation to each other in two-dimensional space.

The second stage measured the prosodic identities of the six attitudes in comparison to each other. In a forced-choice task, native English listeners judged which two expressions, identical in lexical and syntactic form, sounded the most similar to and different from each other, without knowing their attitudinal identities. While there was consensus on most similarity, opinion was much more divided on judgements of most difference.

The third stage explored the combined impact of the sound of the utterance, plus the knowledge of the attitudinal concept being expressed. Native Russian and English listeners and speakers performed a listening and speaking task controlled for lexical and syntactic content. Results revealed that Russian respondents performed significantly worse than the English controls, having particular difficulty with certain attitudes and syntactic types. A final listening task, with EFL learners in Russia, confirmed that both Russian and English listeners show similar error patterns.

Overall, there was significant evidence for the negative impact that an 'intonational' foreign accent has on the correct perception and production of English attitudes. Russian and English respondents behaved in very similar fashions in all aspects of the study, suggesting a developmental interpretation of the acquisition of L2 attitudes, in this case, rather than one relying mainly on L1 transfer. The results strengthen the case for attention to prosodic features in adult second language acquisition research and pedagogy.

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1. Introduction

1.1 Statement of the Problem

Educators and researchers in the field of second language acquisition in general, and in teaching English as a second language (ESL) in particular, are aware of both the segmental and suprasegmental pitfalls which await the adult learner. One of the major suprasegmental pitfalls involves difficulties in correctly perceiving and producing the prosody and intonation of the second language (L2). Crystal (1969:2) says,

> phonetic residue of imperfectly learned prosodic features [is] the final barrier to the mastery of a foreign language; by maintaining a stubborn accent on the one hand, and by obscuring the full range of attitudinal contrasts, on the other.

Twenty years later Cruz-Ferreira echoes this warning (1989:24),

> Intonation is still the last 'stronghold' of a foreign accent in speaking any L2, and this is true even of speakers who otherwise have perfect or near-perfect command of the phonetics of the L2.

The fundamental assumption is that "attitudinal contrasts" are as an integral part of the speaker's message as the segmental content. Prosodic features such as stress, rhythm, voice quality and intonation furnish the listener with information about the speaker's inner state, the speaking context, the message, or the listener. Given the major contribution that prosodic features such as intonation make in the expression and perception of emotions and attitudes, it is reasonable to posit that the potential for misunderstandings between speaker and hearer could increase dramatically if one of them has an intonational or 'prosodic foreign accent.' The negative consequences of a 'prosodic foreign accent' can easily be imagined. Communication would be impaired if the intended emotion of a speaker and the perceived emotional reaction by the listener consistently did not match. This would happen, for example, if as a non-native listener you were not sure whether the native English speaker were conveying surprised enthusiasm or amazed indignation, for example. The converse misunderstanding would occur if, as a native speaker, you believed yourself to be conveying a polite message, but seemed to be receiving in return impoliteness, arrogance, or anger from the non-native interlocutor. These attitudinal misunderstandings imperil communication not only in terms of the emotional information; the illocutionary status of the message is also lost if a declaration or question is misperceived as a warning or threat, for example. Is it the prosodic production of the learner that is at fault in such cases? Or is it that the non-native listener is misperceiving the intended emotional message? Or perhaps it is a combination of both factors?

ESL educators have recently started to pay increased systematic attention to the role of prosody in the expression of attitudinal information by second language learners. Researchers such as Esling and Wong (1983), Anderson-Hsieh, Johnson and Koehler (1992), and Clennel (1996), for example, have emphasized the importance for L2 learners to properly learn and succeed at the suprasegmental levels of English. These pedagogical and practical solutions to alleviating a prosodic foreign accent follow on the heels of research showing that incorrect L2 prosody can result in reduced verbal comprehensibility and increased foreign accent ratings (e.g., Munro & Derwing, 1995), as well as miscommunication of emotional information (e.g., Holden & Hogan, 1993).

Questions remain however, about the exact nature of this 'prosodic foreign accent' and the implications it has for the perception and production of attitudes or emotions by learners of an L2. Why do some attitudes seem easier and others more difficult for learners of English to perceive and produce? How much of the difficulty can be blamed on the prosodic and intonational differences between the learner's two languages, and how much on systematic differences between the conceptual meanings of the attitudes themselves? Or perhaps it is a combination of both linguistic, i.e., prosodic, and conceptual, i.e., semantic factors.

The goal of the present study is to address these questions and to shed light on the nature of a prosodic foreign accent in the production and perception of attitudinal information by Russian learners of English as a second language. It also unites three separate research areas, all of which have relevance for a study addressing questions of attitudinal intonation, L2 learners, and a cross-linguistic comparison.

The first research area deals with the role of prosody in the expression of emotions and attitudes, work stemming from Bolinger (1989) and empirical studies carried out by Scherer and his colleagues, for example. (Scherer 1988, Ladd et al 1985; Goldbeck et al 1988). Studies of this type have established the relative importance of intonation contours, pitch range and change, and voice quality, in conveying the emotions and attitudes of a speaker.

A second area of research concerns if and how the expression of attitudes differs across languages and cultures. This research has explored how comparable the expressions of attitudes are across cultures and languages in order to address the issue of universals in human language and culture. Past research in this area includes both cross-cultural studies in intonation and cross-cultural studies of attitudes and emotions. Cross-cultural intonation studies have concluded that prosody is an important cue to a language's identity (e.g., Ohala & Gilbert, 1978) and to the identification of a foreign accent in an L2 (e.g., van Els & de Bot, 1987). Cross-cultural attitude studies have analyzed the way that attitudes and emotions are categorized and expressed differently and similarly from culture to culture, or language to language. (e.g., van Bezooyen, 1984, Beier & Zautra, 1972, Walbott & Scherer, 1988 inter alia). Psycho-social emotion researchers have documented the case for common socio-biological causes and expression of emotional behaviour for all humans. (e.g., Plutchik, 1980).

Thirdly and finally, foreign accent or ESL-oriented studies focus on difficulties that adults learners have with L2 phonology, and prosody in particular (Backman, 1979; Munro, 1995; Willems 1982, inter alia). In the pedagogical arena, educators have recently started suggesting ways to best teach their students to deal with suprasegmentals such as voice quality and intonation as part of learning correct English pronunciation. (Esling & Wong, 1983; Jones & Evans, 1995, inter alia)

The present study combines aspects of the above research areas in the following ways. Firstly, it makes the assumption that intonation is crucial to the correct expression of attitudes in Russian and English. Secondly, it operationalizes a cross-cultural and cross-linguistic framework that compares the intonational and attitudinal expression systems of these two languages. Thirdly, it uses an ESL and second language acquisition testing ground in which the subject population is composed of native speakers of Russian who have acquired or are acquiring English as adults.

In sum, this study is a multi-faceted investigation of the causes and consequences of an 'intonational foreign accent' that is more comprehensive both in scope and depth than previous, related studies. It takes into account not only the intonational features of a set of attitudes, but their respective conceptual identities across the L1 and the L2. The operation of these factors both in isolation and in combination will allow for a well-grounded and more thorough explanation of how adult ESL/EFL learners use these features in their comprehension and expression of a set of common English attitudes.

1.2 Purpose and significance of the study

The purpose of the present study is therefore to identify which of the linguistic and/or conceptual factors of English attitudes interact or interfere with the ability of Russian learners of English to perceive and produce English attitudes in general, and English attitudinal intonation in particular. Thus, the investigation will result in a three-way interaction aimed at providing 1) a description of the contribution that intonation makes to an 'attitudinal foreign accent' for Russian learners of English, 2) a description of the similarities and differences among certain attitudes in Russian and English at the linguistic (i.e., prosodic) and conceptual (i.e., semantic) levels and, 3) a determination of the degree to which these similarities and differences affect the correct production and perception of English attitudes by Russian learners.

The results of this study will identify 1) the role that intonation plays in the expression and perception of attitudinal information; 2) those attitudes which cross the linguistic and conceptual border between Russian and English; and, 3) which of three aspects composing the identity of certain attitudes, i.e., the conceptual, the linguistic, or a combination of both, contributes most to Russian learner difficulties with English attitudes. In terms of practical implications, results of this study will serve to strengthen the message that linguists and ESL researchers are recently emphasizing about the negative consequences of an incorrect 'intonational' accent for adults speaking English.

1.3 Organization of the investigation

The study is broken down into a series of five experiments, divided among three categories or aspects, each in a separate chapter. The first category to be addressed, in chapter two, is that of the cultural or semantic concepts of the target attitudes. The literature and research on the conception of attitudes and emotions across cultures is first reviewed, from the standpoint of language, culture/society, and biopsychology. These three constructs are also used as support in a comparison of the notion of 'emotion' and 'attitude'. The experiments in this chapter, experiments 1 and 2, explore the underlying conceptual meanings of certain attitudes and their relationships to each other, as conceived by native Russian and native English participants. A comparison is then made of these relationships across Russian and English. The assumption being made here is that the degree to which the underlying conceptual bases of the target attitudes are similar in Russian and English will affect how well these concepts transfer across the boundary between the two languages, thereby creating perceptual or production difficulties for the learner subjects. The semantic or conceptual norms provided by the Russian and English participants will then provide a basis for the comparison with the other two categories.

The second category, in chapter three, is an investigation of the contribution that the sound of an attitude, including its prosodic profile, makes to correct perception and production by learners. Experiment 3 investigates native English-speaker perceptions of how the expression of one attitude sounds in comparison to another. These judgements of similarity and difference among the target attitudes will also form a basis for comparison to the judgements made based solely on the conceptual meaning of the attitude in the previous chapter, and with results of the third category of experiments.

The third and last category of experiments in chapters four and five explores the combinatory effect for a listener and speaker of both the conceptual meaning and actual linguistic expression of each attitude. Experiments 4 and 5 in this category test the perception and production abilities of native English subjects and native Russian subjects when both conceptual information and linguistic information is available to the speaker and/or listener. Previous research which examines the role of prosody in attitude expression, as well as cross-cultural studies of intonation and attitude are discussed beforehand. The documented difficulties that adult learners and NNS experience with English prosody in general are also reviewed. The literature review section also summarizes differences in the grammatical intonational systems of Russian and English and implications for transfer and interference between the two languages. Experiment 4 tests the ability of Russian speakers of English to correctly perceive and produce English attitudinal intonation by comparing their performance with native English speakers' ability to do the same. Four speaker-listener dyads serve as subjects, RussL(istener)-EnglishS(peaker), RussL-RussS, EngL-RussS, EngL-EngS. The target attitude expressions are varied in syntactic construction, i.e., yes-no question, wh-question, and statement. The attitudes themselves vary by positive or negative connotations.

The second experiment in this same category, number 5, is a test of the perception abilities of native English and native Russian listeners. It uses the same target attitudes, while controlling for speaker (i.e., one adult female), and for syntactic type (i.e., tagged yes-no question). These perception and production judgements are then compared to the judgements made on the basis of the other two categories, in order to see to what degree the combinatory effect that the intonation contour that accompanies each attitude at the level of linguistic expression, along with each attitude's underlying semantic concept, has in comparison to the effect of the intonation of the linguistic expression alone, and conceptual meaning alone, in predicting the ability of Russian learners to correctly perceive English attitudes.

The final chapter summarizes and compares the results across the two factors, conceptual and intonational, and their interaction. The experimental results are also compared and contrasted across Russian and English. The study concludes with a discussion of implications for current knowledge about the proccess of transfer in second language acquisition and about the role of prosody in second language performance.

2. The Conceptualization and Expression of Attitudes and Emotions

2.1 *Language and Attitude across Cultures*

Part of a cross-linguistic comparison of the expression of attitudes, is the question of the 'translatability' of the attitudes themselves. How closely does the concept of English 'enthusiasm' match the concept of Russian энтузиазм, for example? And how will this degree of cross-linguistic comparability affect a listener's ability to interpret correctly such enthusiasm as expressed by a native or non-native speaker of English? Research which compares the expression of emotions or attitudes across cultures necessitates the use of labels such as joy, sadness, fear and anger for the attitudes being compared cross-culturally. These labels are presumably considered to be translation equivalents. If they are, then the *a priori* assumption in these cases is that the linguistic translations and their underlying semantic concepts are similar enough in the test languages, that there is validity in comparing them cross-linguistically. Osgood (1975:17), however, strongly cautions against such an assumption.

> In the last analysis, given the different ways the lexicon of different languages carve up the world, translation equivalence is a goal to be sought but never really achieved. The semantic spheres of translation-equivalent terms overlap to varying degrees but probably never coincide in perfection.

Couper-Kuhlen also maintains the dependence of an attitude's identity on the language and culture it is couched in (1986:20),

> it is quite possible that the speakers of a given language have an organized system of linguistic contrasts for expressing attitudes and that this system, although rooted in universal physiological and psychological processes, is in its elaboration a unique product of the culture which fashioned it.

Here, the notion of language-particular linguistic contrasts interacts with human universals in the actual physical expression of an attitude. In other words, the 'linguistic contrasts' are comprised not only of vocal and verbal features, such as intonation patterns, tone of voice, and lexical items, but also of the semantic contribution that the linguistic label makes to the expression of each attitudinal concept.

There are various approaches to the problem of determining how much influence a particular language or culture has on the identity and shape of an attitude or emotion, and how much is the product of universal features, common to all cultures and languages. One approach starts from the premise that attitudes from different languages should never be assumed as comparable, at least conceptually, because concepts are formed by cultural experiences, which differ from culture to culture, and are never identical. Wierzbicka's (1994) research on variations in language and cultural scripts for emotions falls in this category. Another approach argues for the universality of emotional expression and behaviour, citing evidence from the socio-biological and evolutionary roots common to all humans. This is the approach taken by emotion researchers such as Plutchik (1980). Still another approach, that of Scherer and his colleagues (Scherer et al (eds.) 1986; Scherer (ed.) 1988), seeks to determine how the concept of an attitude or emotion, provided by its linguistic label, combines with its vocal and verbal instantiation to create an expression of attitude that is the norm for a given culture.

2.2 *Cultural/Societal view of emotion expression*

A mainly culture-specific interpretation of emotion or attitude expression was hypothesized by Scherer (1988);

> Given the central function of non-verbal expression as the major medium of communication of emotional feeling (Darwin, 1872, 1965), one would expect well-elaborated social prescriptions for what is allowable or desirable in terms of emotional expression under specific situational circumstances (p. 9).

Scherer and his colleagues revise this view somewhat when it comes to concluding how much emotional expression can be considered culturally universal and how much biologically predetermined:

> The extreme view that emotional expression and emotional experience are primarily determined by social and cultural factors would seem difficult to maintain in the face of these data...On the other hand, an extremely biological view, arguing for innate emotion programs unaffected by cultural factors would be equally untenable. Although the cross-cultural differences are smaller than differences between emotions, they nevertheless exist. (1988: 55)

These results are drawn from a cross-linguistic survey of emotional expression in eight countries (Belgium, France, Britain, Israel, Italy, Spain, Switzerland, W. Germany). Scherer and his colleagues (1986) investigated how similarly the four emotions of *joy, sadness, fear* and *anger* were expressed across languages. They were interested in finding out how much influence the individual cultures and languages have on the shape of each emotional expression. Over the next few years, the study was expanded to include North America and Japan. The list of emotions also grew to include disgust, shame, and guilt. The list of modalities included in the study was extensive. The researchers looked at verbal, nonverbal and gestural indicators, including facial expression, body alignment, speech tempo, melody and length of utterance. The differences between the specific emotions were all significant. As well, most of the accompanying indicators were found to interact in a statistically significant manner with the test emotions. Statistically significant differences among the various languages/countries were also found, albeit to a lower degree than between the seven emotions themselves. And since the differences among countries tended to be those of degree or emphasis, the conclusion was modified to a middle-of-the-road position, incorporating social and cultural factors, as well as innate biological 'emotion programs' (p. 55) as the determinants of emotional expression in the various countries.

It is interesting that in the Scherer studies, joy, sadness, fear and anger were chosen as the target emotions based on the fact that they all were contained in emotion theories as basic and universal, whereas other emotions such as disgust, shame and surprise were not included initially because "they may be far more dependent on cultural interpretations" (p. 30). The labels representing these emotions were presented in experiments as one adjective or as pairs of adjectives in six different languages. In order to "guarantee equivalence across countries" (1986: 32), the four emotions were represented for subjects by two verbal labels. For example, Joy, was represented by 'joy, happiness', in Great Britain, and 'joie, bonheur' in France. The target emotion labels were translated into the respective languages and then translated back into English. Despite the care these researchers took to ensure 'translatability' at the label or conceptual level, the question of 'dependence on cultural interpretations' may not have been solved. Societal or cultural norms are conceivably just as applicable at the conceptual level, as captured by the linguistic label that a culture gives a particular attitude, as they are at the level of vocal or verbal instantiation.

Wierzbicka (1994), for example, is a proponent of the powerful influence that culture has on the language and concepts of attitudes, emotions and feelings. She says;

> The categories of our language suggest to us a certain interpretation of our feelings, and it is difficult - perhaps impossible for us to sort out our awareness of the feelings themselves from the interpretation imposed on them by language. (1994:142 in Couper-Kuhlen 1986:173))

For Wierzbicka, the dependence that an emotional concept has on the language used to describe it precludes attempts to use language A's emotion words to describe the emotions of Language B. The 'conceptual primitives' (p. 156) which make up the linguistic meanings of emotions are too culturally sensitive to be used across languages. Only the actual physical sensation of a 'feeling' can be universal in nature because it involves no cognition by an individual. An 'emotion' however, is the direct result of cognitive processing, i.e., Person X thought something; Because of this, X felt something (p. 146). Thus,

> from a universal, language-independent point of view, it is the undifferentiated feel that is a truly fundamental human concept, not the more elaborated, more culture-dependent, and theory-laden emotion (p. 146).

Part of the problem is the word 'feeling', she says, which unfortunately in English applies to both bodily and mental phenomena.

However, the use of cognition to distinguish between a physical feeling and its expression in emotional language can actually bring the two concepts, physical feeling versus cognitive emotion, closer together, not further apart. For example, Langer (1988:41) takes the difference between a cognitively perceived 'emotion' and a physical 'feeling' to be inextricably united by the language used to express them.

> An emotion, mood or disposition actually felt is as subjective as any thought about it...the conception of feeling and contemplation of it are not automatically distinguished from the actual occurrence called 'having' that feeling.

The linguistic and conceptual shape of an emotion or attitude seems therefore to be influenced at the very least by societal or cultural norms imposed on the language used to describe an attitude, and the very concept of the attitude. These linguistic and conceptual ingredients can themselves be shaped by each other. Another type of influence stems from the psycho-biological givens of emotional expression and behaviour. Researchers in this area cite evidence from the origin, function and purpose of emotional expression for the human species as a whole, to make claims for human emotional 'universals'.

2.3 *Biological/Physiological view of Emotion Expression*

In this view, evolutionary and adaptive forces have created the need for emotional expression, and shaped its subsequent characteristic linguistic and non-linguistic behaviour.

Dobrovolsky (1992), for examples, illustrates the cross-cultural human adaptive nature of the human emotion, joy. This description is illustrated cross-modally as it occurs in music, speech, visual art, metaphor and facial expression. From an examination of these modes in English, Italian and German, he concludes that the physical gesture of joy includes an upward inspiratory phase and a downward release phase.

Plutchik (1980, 1989), an evolutionary psychologist, takes a biological, adaptive stance in the explanation of emotional expression in humans. Although his goal is to explain the universal human function and necessity for emotions, he nevertheless acknowledges that the words we use in English to refer to these emotions are connected to the English linguistic and cultural system. He says, "Like any English word, an everyday word for an emotion is embedded in a cognitive network of beliefs and concepts" (1989:107) and "everyday emotion categories are not mentally represented as independent or mutually exclusive" (1989:107).

Having given a passing nod to the linguistic or conceptual root of emotion categories, Plutchik proceeds in his explanation for the existence of emotions. He ascribes this existence to the evolutionary and adaptive contributions that emotions make to the continuation and evolution of the human species within its environment. Emotions are "adaptive devices in the struggle for individual survival at all evolutionary levels" (1980: 138).

Plutchik characterizes emotion using three separate 'languages'. The first language is 'subjective', one which mirrors the everyday language we use to describe our emotions. He identifies eight prototype or basic emotions which we call subjectively (at least in English) Joy, Sadness, Acceptance, Disgust, Fear, Anger, Expectation and Surprise. The reasons behind these choices as the basic inventory become clear as soon as they are discussed in terms of the second, or 'functional' language. Functional language links these subjective adjectives to adaptive processes that humans have used and continue to use as survival mechanisms. For example, the emotion Fear serves as a Protective reaction to avoid being destroyed, Anger as Destruction of a barrier to satisfaction of a need, Joy as Reproduction to further the species, Sadness as Reintegration of something possessed or enjoyed, and Surprise as Orientation or contact with a new or strange object (p. 144).

These eight basic functional dimensions have associated with them certain behaviors which may or may not occur depending on the conditions of the environment (p. 155). These behaviours form the basis of the third, or 'behavioral' language. Once the stimulus occurs in the environment, the human cognitive process evaluates the stimulus, prompting the occurrence of that behaviour which will increase the chances of survival. Plutchik means emotion to refer to this entire process, and all of the 'languages' it entails (p. 155). The eight subjective emotions and their behaviors are illustrated in Table 2.1;

Table 2:1 Behaviours associated with basic emotions

Emotion	Behavior
Fear	Withdrawing, Escaping
Anger	Attacking, Biting
Joy	Mating, Possessing
Sadness	Crying for help
Acceptance	Pair bonding, Grooming
Disgust	Vomiting, Defecating
Expectancy	Examining, Mapping
Surprise	Stopping, Freezing

The research discussed so far suggests that there is both a language and culture unique component the human emotion expression, and a language-neutral, physiological universal basis to their characters. The disagreement among researchers lies in the amount of influence ascribed to each factor. A parallel form of this same discussion proposes that one important difference lies within a linguistic distinction in English, such that the primarily socially-determined and conventionalized version of emotional expression be given the label of 'attitude', whereas the primarily biologically determined, culturally-neutral concept or behaviour be given the label of 'emotion'.

2.4 *Emotion versus Attitude*

Arguments such as those put forward by Wierzbicka (1994) for the dependence of attitudinal or emotional concepts on the language they originate from and are expressed in, seem to invalidate any attempt to use emotion or affect words as equivalents across languages and cultures. On the other hand, the universals of human evolution and biology suggest that concepts of at least a basic number of emotions must not differ much across languages, based as they are on language-neutral behaviour. Linguists interested in the interplay between labels for emotions and their conceptualization have assembled entire affective lexicons, basing their classifications on the adjectives used by a particular language. Clore and Ortony (1988), for example, have developed an Affective Lexicon for English. Their premise is that "the necessary and sufficient conditions of emotion, if there are such, are psychological in nature, not behavioural, expressive or physiological (p. 373). Their goal was to sort out the fuzziness of terms like 'emotions', 'attitudes', 'moods', 'traits' and 'affect' by differentiating "major kinds of psychological states and conditions referred to by terms in the affective lexicon, including not only emotional states but also cognitive states, bodily states, and others" (p. 360). Clore and Orteny contend that 'pure' emotion terms refer to conditions that are 'states', which are internally and not externally motivated, are mentally, not physically manifested, and which focus primarily on 'affect', as opposed to appearance or behaviour, for example. Internally-motivated states are minimally contrasted to 'frames of mind', which are "traits, attitudes, or long-term dispositions"(p. 379). For example, traditional emotion terms such as *happy, sad, angry, disgusted, proud, ashamed, etc.* are contained in the category 'Internal Affective States'. A related category, 'Internal Cognitive Conditions', do not have affect as their focus and include adjectives such as *amazed, convinced, baffled, startled, bored, surprised, etc.*

There are also mixed conditions such as 'Affective-Behavioral Conditions' which reflect expressive styles, e.g., *cheerful, apologetic, mournful, crabby, etc.* 'Affective-Cognitive Conditions' have three sub-types; 1) emotionally-toned ways of thinking, including *pessimistic* and *encouraged,* 2) ways of conceptualizing self or others, e.g., *admiration, contempt,* and 3) emotionally-affected thought, such as *worried* or *dismayed.* The final category that contains terms that one might classify intuitively as emotions include those belonging to 'Behavioral-Cognitive Conditions'. As the name implies, these terms refer to how one is thinking about a situation and might act on it, and includes *careful, cooperative,* and *adventurous,* among others.

Clore and Orteny tested their 600 word taxonomy by asking native English speakers to indicate how confident they were that each was an emotion. Each term was put into two test contexts, '*feeling* ______' and '*being* ______' and each term was rated in each context. For example, subjects were asked how confident they were that '*feeling neglected*' is an emotion and then how confident they were that '*being neglected*' was an emotion. They hypothesized that words referring to genuine emotion states would be judged at a similar level in both test contexts. It turned out that true 'affective terms' (including Affective, Affective-Cognitive, Affective-Behavioral) included those terms that received both high 'being' and 'feeling' confidence ratings for being an emotion.

The Clore and Orteny classification of emotion terms by type of cognitive and behavioural state was verified using linguistic intuitions. This dependence on subjective linguistic impressions as a back-up to the link among cognitive, behavioural, psychological criteria, serves to increase the perception of attitude as an 'abstract entity' as Plutchik and Kellerman categorizes it (1980:9). For other researchers as well, attitude is a theoretical entity, and therefore inexorably linked to the language used to describe it. Arndt and Janney (1987) go the farthest towards the abstract with their definition of attitude. "An attitude is not a concrete entity, but a hypothetical construct which psychologists have developed to account for certain inferences about observable behavioral regularities" (p. 71).

Given the complex classification system that emotions and attitudes labels might suggest in any given language, researchers have been surprisingly consistent in making a binary distinction between an emotion and an attitude. The distinction operates at a number of different levels, including societal, physiological, cognitive, linguistic and pragmatic. Dobrovolsky (1980), for example, considers one of the main distinguishing factors operating between emotion and attitude as the notion of 'control'. Whereas the expression of 'emotion' is an involuntary act, the expression of 'attitude' is a voluntary act involving cognition on the part of the speaker. This cognition is a result of "socially-rooted factors like class, upbringing, taste, political awareness" (p. 50). Thus, an attitude is a coded, stylized emotion under conscious, voluntary control of the speaker (p. 50). This element of conscious cognition in the expression of attitude is reminiscent of Wierzbicka's distinction between (cognitive) emotions and (physical) feelings. An emotion, on the other hand, is a subjective response to a situation, and as Dobrovolsky's (1992) discussion of joy points out, is a spontaneous, physiological state, showing "cross-modal (and cross-species) manifestation in facial expression and gesture" (p. 1).

Plutchik and Kellerman (1980) posit a definition of attitude in which the shape of its expression depends on the circumstances and consequences of the speaking context. An attitude is

> a relatively transitory affective state with uncontrollable psycho-biological components and partly controllable expressive components, which enables the speaker to maintain his cognitive emotional and social equilibrium and adapt to the speaking situation. (p. 30)

Here an attitude retains the uncontrollable aspect of emotional expression, but is more susceptible to a speaker's control. The amount of control in turn depends on how exactly the speaker wishes to adapt the expression of an attitude to the speaking context, taking into consideration the listener, the register, etc.

Arndt and Janney (1987) make an emotion-attitude distinction by focussing on a fine discrimination among attitudes. The criteria are based on a number of communicative variables which occur during the communication of affect between a speaker and hearer. The setting of the speech act can change the purpose and shape of the expression of 'affect', more properly considered an 'attitude'. Arndt and Janney believe that the expression of attitude revolves around communicative 'objects' in the speaking situation . The presence of this 'object' distinguishes attitudes from "less differentiated notions like ‘feeling’, ‘emotion’, ‘affect’, etc." (p. 76). The three possible objects at which the speaker can direct an attitude are; 1) probable causes of perceived or projected communicative acts; 2) the present interpersonal relationship between the speaker and listener, and 3) potential consequences of perceived or projected communicative acts. Shifts between these attitude objects require corresponding linguistic shifts in attitude labels. For example, attitudes towards Past or Present Causes include *satisfied, pleased, amazed, shocked, confident, etc.* Attitudes towards Persons/Partners in the Immediate Relationship include *authoritative, friendly, resentful, critical, deferential, etc.* Attitudes towards Present and Future Consequences include *eager, optimistic, pessimistic, hesitant, doubtful, etc.* These three objects are each viewed as a circumplex in three-dimensional space. Each attitude object is also made up of three fundamental scalar dimensions. These dimensions are 1) whether the attitude is Positive or Negative in nature; 2) how much Control or Lack of Control it displays, and 3) the degree of Intensity or Lack of Intensity it demonstrates. The attitudinal labels are defined by these three dimensions, and therefore arranged at different points along them. For example, a Probable Cause attitude such as *'certain'* is high on the scale of control, whereas *'perplexed'* is high on the scale towards uncontrol. *'Aloof'*, an interpersonal attitude towards a speaking partner, is higher on the scale towards control, but closer to the negative end than the positive end of the scale. For Arndt and Janney then, the speech act and speaking context of an individual conversation is in control of the definition and expression of an attitude.

Couper-Kuhlen (1986) also emphasizes the basic social nature of attitudes, as opposed to emotions. Her definition is linked to patterns of behaviour at the level of society, rather than the individual speaking context. She says, "Arousal-related emotions are often thought of as unlearned spontaneous reactions to a given situation, while attitudes [ ] are more apt to be learned, conventionalized patterns of behaviour" (p. 186). Again, 'learned' and 'conventionalized' implies standards that are learned by speakers in a particular language community as they first learn a language. The implication for second language learners is that they might experience difficulties adapting to different standards when moving from the L1's 'affective' or attitudinal display rules to those of the second language.

Finally, Scherer (1979) also makes a binary distinction between 'emotional state' and 'cognitive attitude'. His distinction ties into both the cognitive and linguistically-determined descriptions of emotions and attitudes considered so far. He says, "In sum, we must distinguish an unmonitored, purely physiologically determined externalization of emotional state, presumably universal across linguistic communities, from a 'cognitively' monitored expression of attitude, conventionalized and communicative in purpose." (p. 174) This definition subsumes Dobrovolsky's notion of conscious control or cognitive monitoring imposed by the speaker. Also present are the human universal physiological determinants emphasized by Plutchik. This definition also incorporates the notion of the 'non-universality' of attitudes and their language-specific or cultural characteristics.

In sum, emotion and attitude researchers consider the source, characteristics and purpose of emotions and attitudes to be fundamentally different. Table 2.2 provides a summary of these differences in terms of character, goal, purpose, and context.

Table 2:2 Emotions versus Attitudes

	Emotions	**Attitudes**
Character	Spontaneous; unplanned; less speaker control	Conventionalized; socially stylized; greater speaker control
Goal	Specific external target not necessary	Deliberately transmitted at listener

Purpose	Psycho-social-behavioural adaptation	Social, communicative adaptation and facilitation
Context	May occur without listener	Listener always present

The nature and causes of emotions and attitudes differ; emotions are essentially behaviours instigated by human universal physiology and socio-psychological forces. Attitudes are the result of reflective or cognitive behaviour at the level of the individual, and shaped by the level of society and culture. Their characters differ; emotions are spontaneous in nature, under less speaker control; attitudes are less spontaneous and more under control of the speaker. Their goals differ; emotions reflect an inner state, and are not necessarily directed at a listener; attitudes might begin as inner state, but they are directed outwards, away from the speaker, towards the communicative goal, whether it be the listener, the context, or the message itself. Emotions serve the essential purpose of helping an organism to survive by ensuring that a specific behaviour will take place to increase survival of an individual. Attitudes, on the other hand, are used deliberately as a signal, designed to reach the listener in the communicative exchange. They are social in nature, designed to effect change in the listener, and therefore only occur in social situations involving a speaker or listener. Emotions are not primarily social in this way. Finally, it is conceivable that the manner of expression may also differ, such that emotions or attitudes involve different prosodic features.

This theoretical distinction notwithstanding, it would probably be unrealistic to expect a native speaker of English either to recognize or explain the difference between an attitude and an emotion and give examples. For the purposes of this study, however, the distinction is a useful one, concentrating as it does on the circumstances of speech act situations involving variations on types of speaker and listener, causes and communicative goals. The very definition of attitude, incorporating as it does the notions of social interaction, unconscious control and learned conventions or patterns provides an appropriate tool for testing the degree of control that non-native speakers have over this aspect of their second language and culture. It should be the case non-native speakers and listeners will be more susceptible to confusion among attitudes than emotions. Since attitudes are geared towards a listener they are more appropriate for an experiment involving a speaker and a listener's judgement of that speaker's utterance.

2.5 *Target Attitudes*

The attitudes that were chosen to be investigated were *Concerned, Confident, Enthusiastic, Impatient, Polite* and *Skeptical.*

Concerned is related to loving and nurturing behaviour which helps ensure survival of the group and therefore of the species. This goal is translated sociobiologically into a sense of altruism and social cohesiveness. However, there is also a more negatively-valenced side to Concerned, which is rooted in fear and anxiety for loved ones, also resulting in care and nurturing of those in the group who are at risk.

Confident also seems to have two sides, one that is related to spontaneous aggression, and a readiness to threaten face, the other also reflecting a state of awareness and readiness, but in a positive sense. In this sense, a state of satisfaction and agreeability with the situation is presented, stemming from a feeling that one is in control of a situation.

Enthusiastic takes aggreeableness further to a state of happiness. This attitude is also related to aggression however, in that the person is ready to take action and is expressing this readiness in a cheerful or even joyful manner.

Impatient was chosen as the closest attitudinal representative of anger and is thus also related to aggressiveness. It seems most obvious to express impatience about Arndt and Janney's past and future consequences or goals, and also at a person.

Polite is an attitude that places very high on the socialized, culturally conventionalized scale. As Kant says, polite "is an aspect of convention" ([1787] in Arndt & Janney: 374) and a very good candidate for exhibiting cultural and language differences at both the conceptual and linguistic level. It is perhaps the most socially-shaped attitude of the six and diffused among many types of gesture, including those of verbal, facial, body and vocal nature. So, while the definition and expression of politeness certainly falls under linguistic 'display rules', it also depends for its interpretation on listener feedback, and the potential for loss and negotiation of 'face' requirements for speaker and listener while they negotiate a conversation. As Arndt and Janney (1986) say "conventions of politeness are said to regulate appropriate and inappropriate ways of speaking" (p. 375). The very broad nature of these conventions of politeness and impoliteness, and their dependence not on "style, society, situation or any specific utterance ...in everyday practice, but [on] people"(p. 275) makes polite not just a cognitively-based attitude but primarily social in nature.

Skeptical is the attitude most obviously related to the cognitive requirements in the definition of attitude. Here there is a mistrust on the part of the speaker about his or her surroundings, or in Arndt &

Janney terms, about Past/Present Causes or Present/Future Consequences involved in the speech act. This translates into bewilderment and behaviour which rejects the object (concrete or communicative) and therefore the message of the speaker in question. The necessary cognitive prerequisite is to have formed an opinion regarding these objects, and to have started coming down on the negative side of belief.

The choice of each attitude was also based on its correspondence to an emotion from Plutchik's (1980) inventory of eight basic emotional dimensions. The eight dimensions include Anger, Disgust, Sadness, Surprise, Fear, Acceptance, Joy and Anticipation (p. 171). Each target attitude corresponds to one of six of these dimensions. Plutchik locates specific emotions on points along each emotional dimension, represented as a three-dimensional circumplex. For example, Concerned represents the dimension Fear. The closest emotional counterparts for Concerned in the circumplex are *apprehensive, worried, cautious*. Confident was chosen as a representative of the Anticipation dimension, which is filled by emotions such as *satisfied, acceptance, adventurous*. The other four attitude-emotion correspondences are listed below in Table 2.3.

Table 2:3 Emotion and target attitude counterparts

Target Attitude	Dimension	Emotion Counterparts
Concerned	Fear	apprehensive, cautious
Confident	Anticipation	satisfied, acceptance
Enthusiastic	Joy	joy
Impatient	Anger	annoyed, angry
Polite	Acceptance	agreeable, affectionate

Skeptical	Disgust	distrustful, bewildered

Based on their potential placement on the circumplex, the target attitudes were then grouped according to their positive or negative connotation, or valence. Three of the attitudes were chosen to represent semantically positively-oriented attitudes (*Confident, Enthusiastic, Polite*) and three semantically negatively-oriented (*Concerned, Impatient, Skeptical*). The attitudes were also chosen to range along an Activity Dimension or Energy scale (Osgood, Suci & Tannenbaum, 1957). These expectations are partially based on van Bezooyen's (1984) analysis of the perceptual correlates for ten Dutch emotions. She concluded that a relatively high pitch level, wide pitch range, louder, and faster tempo was correlated with placement at the Active end of the scale. A low pitch level, narrow pitch range, softer and slower tempo was correlated with the passive end of the scale. Her results placed the emotions of *surprise, anger,* and *joy* nearer the active end of the scale, while *shame, neutral* and *sadness* were nearer the passive end. *Interest, disgust, fear* and *contempt* were located around the middle of the scale.

The six target attitudes were tentatively placed on the energy/activity dimension based on a consideration of the acoustic correlates of their emotional counterparts (as per Plutchik 1980 and van Bezooyen 1984). It was expected that Enthusiastic, as a representative of Plutchik's Joy dimension, might have similar acoustic characteristics to Joy, such as a louder voice, faster tempo and higher pitch level, which would place it closer to the Active end of the scale. As a representative of the Anger dimension, Impatient, with the characteristics of high laryngeal tension and harshness, loud voice and faster tempo might place it at the high activity end. Polite might be equated with van Bezooyen's 'neutral' emotion, which has a lower pitch and laryngeal laxness, placing it somewhere near the middle, slightly towards the passive end of the scale. As a representative of the Disgust dimension, with a low pitch level and slower tempo, Skeptical would also lie closer to the passive end. As a representative of the Fear dimension, Concerned might have some of the characteristics of whisper, or of generally low acoustic energy, and so be expected to lie near the passive end of the scale. Finally, Confident does not have a corresponding emotional equivalent in van Bezooyen's schema. If it lies on the positive side of aggression and anticipation of action, then it might be expected to display a fairly high degree of acoustic energy, in terms of high pitch level, and tempo. This characterization places it nearer the active side of the scale, although perhaps not so near it as Enthusiastic and Impatient. The scalar representation in Figure 2.1 illustrates the relative placement of the six target attitudes along the two dimensions, i.e., a semantic dimension of Positive versus Negative, and an acoustic energy dimension of Active versus Passive.

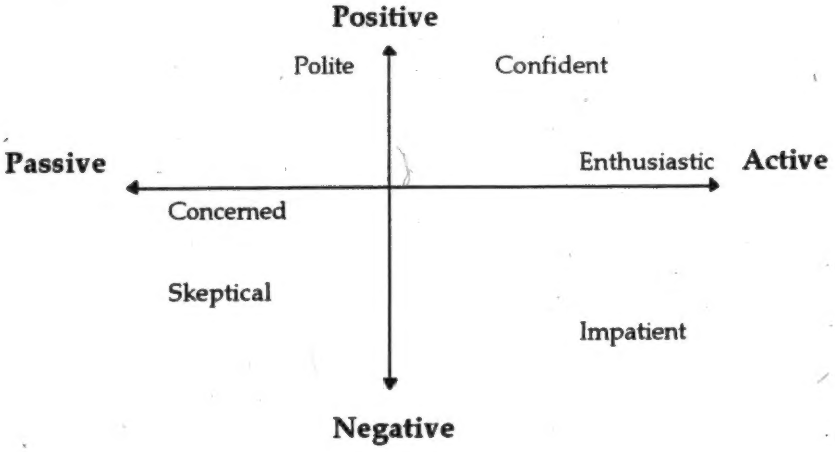


Figure 2-1 Target attitude characteristics

These placements in two dimensional space combine both the semantic or conceptual characteristics of the six attitudes in question, plus their vocal and prosodic characteristics. How close each attitude is to another might indicate the likelihood that each might be confused with each other in a conversation, at least for English. For example, Polite and Confident, both high on the Positive end of the valence scale, might tend to be confused with each other. Concerned and Skeptical, both less active in nature linguistically, and therefore paralinguistically (i.e., prosodically) might tend to be taken for each other. Even Enthusiastic and Impatient, although the former is more positively-valenced than the latter, are both fairly active or high in energy in terms of vocal parameters. These similarities may translate into confusability in interpretation or expression. The obvious question one can now ask is how are the conceptual and linguistic relationships among these six attitudes actually represented or imagined in the minds of native speakers of English and Russian? And more specifically, how closely do the conceptual similarities and differences among the attitudes resemble how they are expressed linguistically by native speakers of either language? The following experiments were designed to answer the conceptual or semantic aspect of these questions.

2.6 *Experiment 1. Conceptual Confusions among Attitudes*

2.6.1 Introduction

The above research indicates that although the conceptual divisions among attitudes within a language may be stable, the conceptual line that distinguishes one attitude from another may or may not be located at the same place across languages. It is therefore quite conceivable that part of the blame for cross-cultural misunderstandings involving misperceived and misproduced attitudes lies in cross-linguistic differences in how a particular attitude is conceptualized from one language to another. In order to determine the degree to which the target attitudes are confusable at the level of the attitude meaning or concept in English compared to Russian, an experiment was devised that investigates native speaker intuitions about 1) each target attitude's potential confusability with the other five attitudes in a hypothetical conversation, and 2) each attitude's degree of scalar similarity and difference to one another. The goal was to construct a baseline measure of the attitudes degree of similarity and dissimilarity to each other. The comparison was made easier to understand visually by converting the frequency and scalar responses into a measure of geometric distance in one-dimensional and two-dimensional space. These association norms can then be used to form a baseline for the amount of confusion that the words and the concepts themselves contribute to Russian learners' perception and production of English attitudes, apart from any accompanying lexical or syntactic information or phonetic/prosodic correlates.

2.6.2 Method

2.6.2.1 Participants

25 native English-speaking adults living in Edmonton, and 22 native Russian-speaking adults living in Moscow took part in the experiment. None of the native English speakers knew any Russian. The Russian respondents were all students in an EFL school.

2.6.2.2 Materials and Procedure

Two forced-choice pencil/paper tasks were designed, one in English, one in Russian. Respondents were given the following instructions in English or Russian:

> Communication often involves misunderstanding. As a speaker in a conversation, you sometimes want to convey a particular attitude or mood and your listener completely misinterprets you. For example, you are trying to express surprise about an issue but instead your listener thinks you are angry about it.
>
> I am interested in knowing how six specific attitudes could be misinterpreted by listeners. For each of the six attitudes, please circle the one attitude you think it could be confused with.
>
> **Enthusiastic** would most likely be confused with:
> 1. Concerned
> 2. Confident
> 3. Impatient
> 4. Polite
> 5. Skeptical

Participants were therefore asked to think about the potential confusability for each of the six attitudes with the other five, and to choose the one they thought the target would most likely be confused with in an everyday conversation in their respective native languages. The questionnaire format invoked decisions based on the attitude words or labels themselves and therefore on the subjects' understanding of the underlying concept accompanying each attitude label in their native language.

2.6.3 Results

The raw frequency data for the English respondents are located in Table 2.4 below. The target attitudes form the vertical axis and the potential confusing attitudes on the horizontal axis.

Table 2:4 Frequencies for Potential Confusions - English (N=25)

Target ↓	Enthusiastic	Polite	Concerned	Skeptical	Confident	Impatient
Enthusiastic	-	2	2	0	9	12
Polite	1	-	11	8	5	0
Concerned	1	10	-	11	2	1
Skeptical	2	2	14	-	0	7
Confident	16	2	0	2	-	5
Impatient	10	0	1	12	2	-

The potential confusions for the Russian and English samples were totalled for each one of the six attitudes. In order to show the relationships among the confusion clusters more clearly, confusion clusters were constructed which depict the two most frequently chosen candidates for confusion by over 20% of the participants, or 5 out of 25 (or 23). An arrow points toward the attitude which would be mistaken for the attitude which the arrow comes from. (c.f. van Bezooyen, 1984). Confusions may be symmetrical (in which case each attitude tends to be mistaken for the other), or asymmetrical (in which case the confusion only goes in one direction). For example, in the potential confusion cluster for English speakers in Figure 2.2, respondents felt that listeners would mistake Polite for Skeptical, but not Skeptical for Polite.

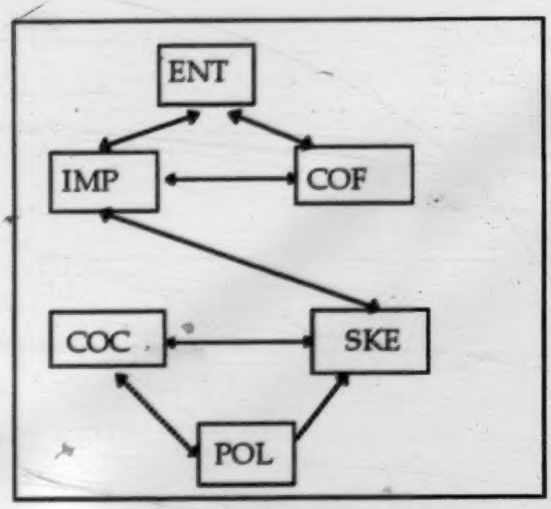


Figure 2-2 English Speaker Potential Confusion Cluster

The potential confusions for native English speakers seem to cluster naturally into two groups. The first contains Enthusiastic, Impatient and Confident, the second, Skeptical, Concerned and Polite. This clustering looks as if it conforms neither to the Active-Passive valence scale, nor to the Positive-Negative scale. If we assume that respondents are basing their judgements or how 'confusable' two attitudes are, based on how similar they are according to some other criteria, then neither one of these scales seems to explain the sorting of these confusions. Perhaps the dimension that the English and Russian speakers are using for grouping these confusion clusters is completely different, a Strong-Weak scale, for example, that includes both a semantic component and a prosodic component. In other words, Enthusiastic, Confident and Impatient may share an active prosody in terms of pitch range and change and faster rate, for example, than do Skeptical, Concerned and Polite, bolstering the former in terms of conceptual or semantic strength than the latter.

Table 2:5 Frequencies for Potential Confusions - Russian (N=23)

Target ↓	Enthusiastic	Polite	Concerned	Skeptical	Confident	Impatient
Enthusiastic	-	0	3	0	9	10
Polite	4	-	8	4	6	0
Concerned	3	2	-	8	0	9
Skeptical	0	1	8	-	11	2
Confident	6	1	0	10	-	5
Impatient	14	0	6	2	5	-

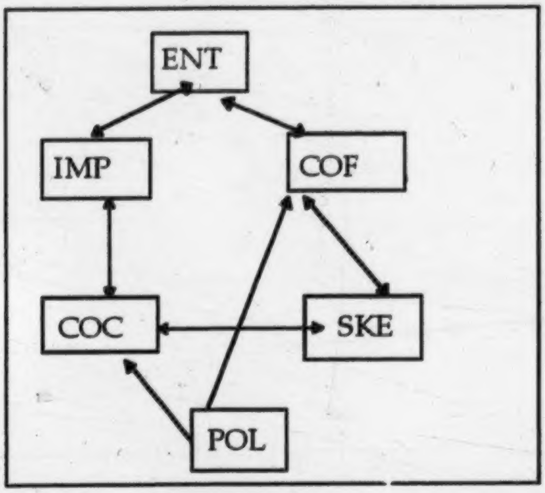


Figure 2-3 Russian Speaker Potential Confusion Cluster

From a comparison of Figure 2.2 with Figure 2.3, it is clear that the Russian and English clustering patterns of potential confusions are similar. The Russians would also confuse Enthusiastic, Impatient and Confident with each other most often. The other triad is again made up of Skeptical, Concerned and Polite.

The frequency data was broken down in order to show each target attitude's first and second-ranked candidate for confusion. Also indicated is the amount of variance that the two top-ranked confusions accounted for in each sample of respondents, Table 2.6 for English, Table 2.7 for Russian.

Table 2:6 English Potential Confusion Rankings (N=25)

Ranking	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
First	Ske	Ent	Imp	Ske	Coc	Coc
Second	Pol	Imp	Cof	Ent	Ske	Imp
Total/25	21	21	21	22	19	21
% of 25	84%	84%	84%	88%	76%	84%

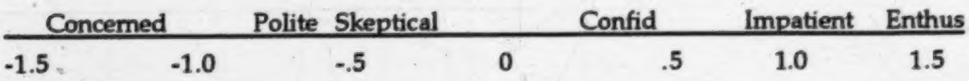
Table 2:7 Russian Potential Confusion Rankings (N=23)

Ranking	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
First	Imp	Ske	Imp	Ent	Coc	Cof
Second	Ske	Ent	Cof	Coc	Cof	Coc
Total/23	17	16	19	20	14	19
% of 23	74%	70%	83%	87%	61%	83%

Both the Russian and English respondents have at least one confusion candidate in common in either the first or second rank. The English respondents were slightly more in agreement as a group of the identity of the first two confusion candidates than the Russian respondents were.

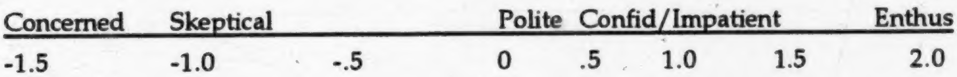
While the above figures illustrate the confusions in terms of clusters, the frequency data can also be used to depict in an indirect manner another type of relationship among the attitudes, that of similarity to each other. A multi-dimensional scaling technique was used to pictorally represent these frequencies as distances in space in order to more clearly show the relationships of the attitudes to each other. Figures 2.4 and 2.5 show the results placed on a one-dimensional scale for the English and Russian attitudes respectively.

Figure 2-4 English Potential Confusion Data - 1-Dimensional Scale



The one-dimensional results for the English subjects correspond visually with the confusion rankings to a large extent. Thus, Enthusiastic and Impatient are located close to each other on the scale, as are Polite and Concerned. Those attitudes not considered as potentially confusable, such as Concerned and Enthusiastic, or Polite and Enthusiastic, are correspondingly located far away from each other on the one-dimensional scale. The attitudes which tend to clump together at one end of the scale or another, such as Confident, Impatient and Enthusiastic, were also considered by the respondents to be highly confusable with each other.

Figure 2-5 Russian Potential Confusion Data - 1-Dimensional Scale



The Russian one-dimensional distance data shows a similar pattern to the English distance data. Concerned and Skeptical are grouped together at a maximum distance from Enthusiastic, reflecting the opinions that these three attitudes would not be confused with each other. Impatient and Confident are closer to Enthusiastic than they are to Skeptical and Concerned in both Russian and English. However, the Russians consider Impatient, Confident and Polite to be grouped closer together in the middle of the scale. These one-dimensional scales also correspond nicely to the amount of Activity, Energy or Strength that each attitude would be expected to exhibit, such that the negatively-numbered end could be interpreted as the Weak or Low end, the middle of the scale as neutral, and the positively-numbered end, as Strong or High activity level. As well, these results match the Active-Passive dimension posited as part of their character in Figure 2.1. The most salient difference between the Russian and English data is the relative placement of Polite as an attitude of Low or Weak energy/activity by the English respondents, but as one with a relatively higher degree of energy by the Russian respondents.

The same frequency data was next converted into two-dimensional space to test whether the relationships between the six attitudes could be further delineated conceptually into a second conceptual dimension. See Figures 2. 6 and 2.7 below.

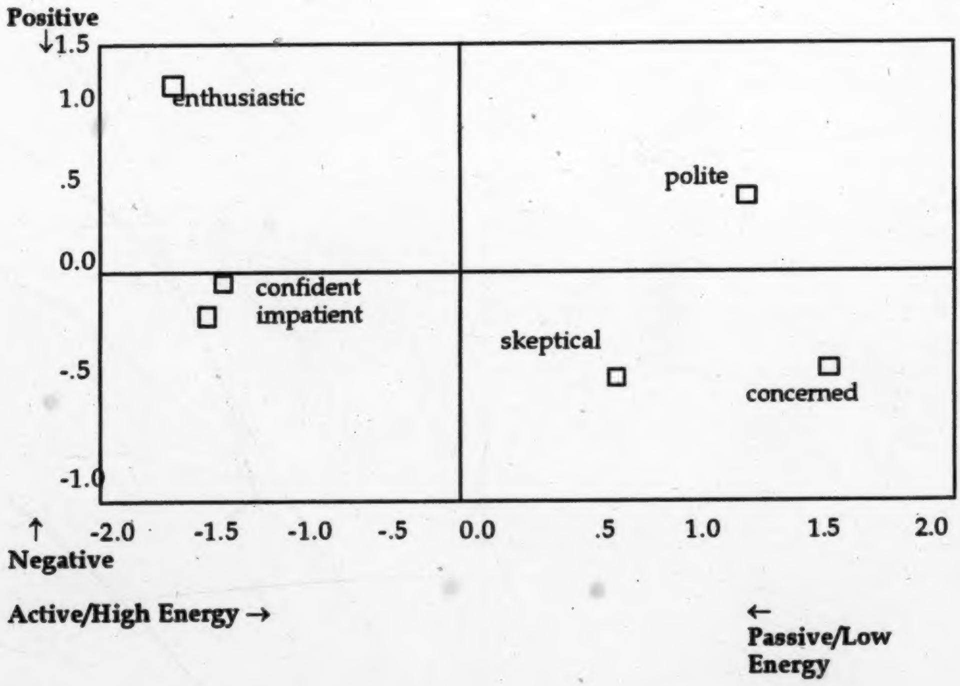


Figure 2-6 English Potential Confusion Data - 2-dimensional scale

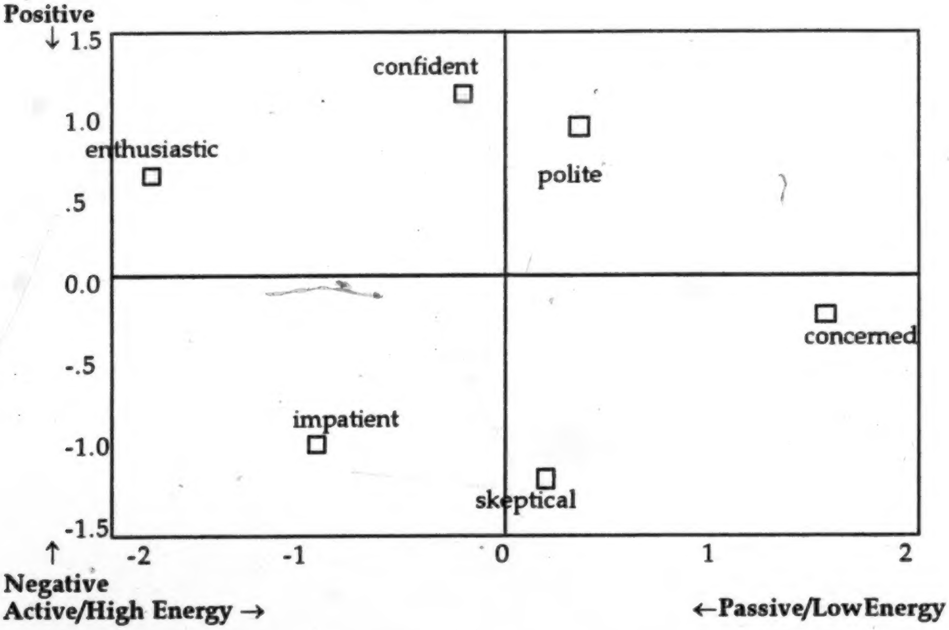


Figure 2-7 Russian Potential Confusion Data - 2-dimensional scale

Dimension 1 of both the Russian and English two-dimensional scales could be posited as an Activity or Energy dimension, as in the one-dimensional plot. Dimension 2 bears a great resemblance to the predicted semantic Positive-Negative Valence dimension in Figure 2.1. Once again, the relative placements of the English and Russian attitudes are similar. In this case, however, the addition of the second dimension has altered the relative relationships somewhat. The attitude Confident is situated markedly differently by the Russians and English respondents. For the Russians, in Figure 2.7, Confident is high on the Positive side of the Positive-Negative dimension, being similar in this respect to Enthusiastic and Polite. Confident is also at a maximum distance from Impatient. For the English speakers, on the contrary, Confident is grouped with the negative attitudes, and is almost identical to Impatient in its degree of Negativity and high Energy or Activity level. It appears that for the English respondents, Confident has a negative connotation, perhaps reflecting an inferred degree of arrogance on the part of someone who is in a hurry or in charge, such as a stereotypical boss. For the Russians, Confident does not carry these semantic overtones of negative authority. It is closer in meaning to Polite, a socially-acceptable and positive attitude.

Overall, these measurements of relative distance among the six attitudes, can be interpreted as indirectly illustrating the degree of similarity in one or two dimensions that the six target attitudes have to each other within the linguistic systems of Russian and English. These semantic relationships also reveal certain tendencies for the six attitudes to be confused with each other both within one language, and across the two languages. Both the Russian and English two-dimensional models show a cross-linguistic similarity both in relative distance and in potential confusability among the six target attitudes, except perhaps for Confident, which displays the most variability. The one-dimensional model, on the other hand, predicts a different pattern of confusability for Polite since it is perceived as closer to Skeptical and Concerned by the English respondents, but closer to Confident for the Russians.

These experimental results have shown us that the overall relationships of confusability and their corresponding degrees of similarity for the six target attitudes are very similar across Russian and English. The next step is to confirm or disconfirm the correlations between perceived confusability and their implied scalar distance relationships with direct evidence from native speaker intuitions on how similar and different the six attitudes are to each other.

2.7 *Experiment 2. Scalar Distance (Perceived Similarities)*

Experiment two was specifically designed to test the perceived similarities in conceptual identities of the target attitudes, again based solely on comparisons between the linguistic labels used by Russian and English speakers. These results can then be compared to the evidence of similarity and potential confusability provided by data from Experiment 1.

2.7.1 Method

2.7.1.1 *Participants*

Nineteen native-English speakers (14 Female/5 Male) and ten native-Russian speakers (5 Male/5 Female) took part in this experiment. The Russian respondents were residents of Moscow, Russia. The English respondents were residents of Edmonton, Canada.

2.7.1.2 *Materials and Procedure*

The pencil-paper task asked each respondent for a scalar judgement based on the meanings of the attitudes. Respondents decided how similar or different two attitudes were to each other in either English or Russian by making a mark on a linear scale between two poles labelled 'very similar' and 'very different.' Each attitude pair, such as Concerned-Enthusiastic, was listed twice, once in the opposite order, i.e., Enthusiastic-Concerned, in the combined list of 30 attitude pairs. The order of the pairs was also semi-randomized so that no one attitude appeared more than three times in a row.

2.7.2 Results

Respondents' marks on the scales were scored by comparing them to a template of a corresponding Osgood (1957) scale consisting of seven sections, numbered -3, -2, -1, 0, 1, 2, 3. The negative end of the scale equated to 'very similar' and the positive end of the scale equated to 'very different'. Scores for each attitude pair (in both directions) were totalled for Russian and English respondents separately. These can be seen below in Tables 2.8 and 2.9.

Table 2:8 English Scalar Distance Scores (N=19)

	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	-	27	4	17	-16	-9
Confident	9	-	-24	10	-11	22
Enthusiastic	7	-23	-	2	-10	36
Impatient	28	17	-4	-	35	-3
Polite	-16	-4	-6	37	-	23
Skeptical	-12	16	39	-1	20	-

Table 2:9 Russian Scalar Distance Scores (N=10)

	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	-	29	11	7	26	22
Confident	25	-	20	16	22	16
Enthusiastic	15	18	-	14	21	28
Impatient	14	15	12	-	29	25
Polite	18	23	18	20	-	16
Skeptical	2	15	27	27	18	-

The interval data were also converted into points in one and two-dimensional space using multi-dimensional scaling. Figure 2.8 below illustrates that the English attitudes are fairly equidistantly separate from each other in a two-dimensional space. An initial observation is that this matrix is very different from the 2-dimensional matrix in the confusability results of Experiment 1. Here, in the vertical dimension, Skeptical, Confident and Impatient are placed at one end, with Polite, Concerned and Enthusiastic at the other. The horizontal dimension could be posited as Strong versus Weak energy with Skeptical, Confident and Polite forming a weak grouping versus a strong Concerned, Enthusiastic, and Confident. This energy dimension is similar to the Strong/Weak dimension of the English potential confusion matrix in Figure 2.6 except that Confident and Concerned have more or less switched places.

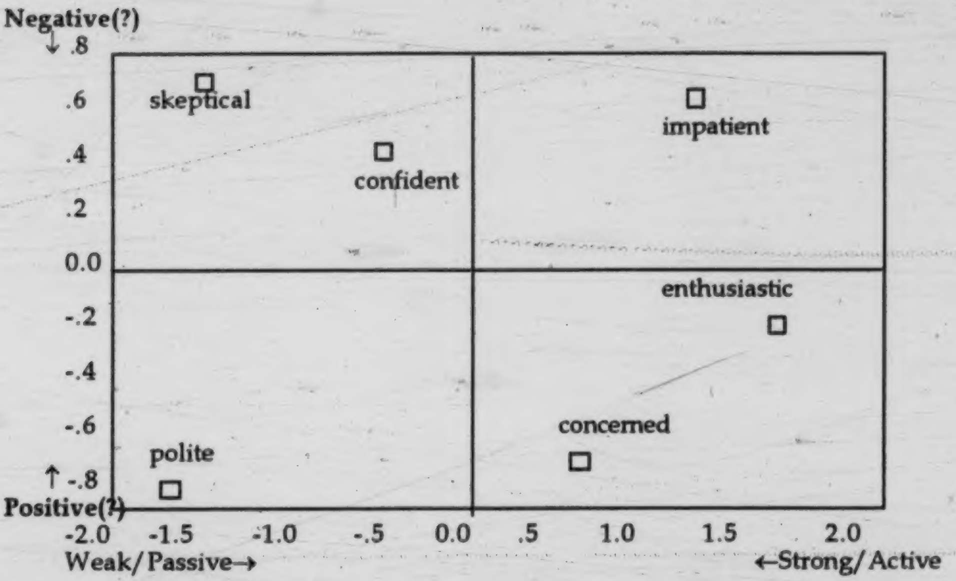


Figure 2-8 Scalar Distances for English attitudes-2-dimensional scale

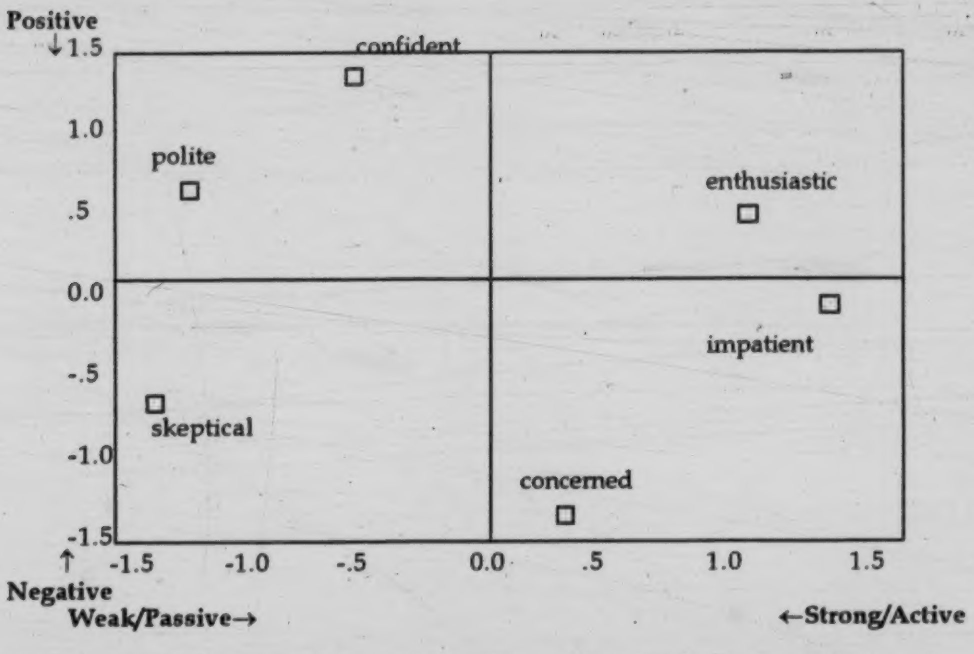


Figure 2-9 Scalar Distances for Russian attitudes-2-dimensional scale

The Russian matrix in Figure 2.9 resembles the Russian similarity/confusability matrix in Figure 2.7 in that Concerned, Skeptical and Impatient are all placed below the mid-point on the dimension that corresponds to negative interpretation on a Postive/Negative scale, while Polite, Confident and Enthusiastic lie above it, corresponding to a positive interpretation. The grouping on the horizontal Strong/Weak is different from the confusability matrix, however, mostly due to the placement of Concerned, which is at the same end of the scale as Impatient, Enthusiastic here, and the placement of Confident, which is at the same end of the scale as Polite and Skeptical. As well, Enthusiastic and Impatient are located much closer to each other in the scalar matrix than in the earlier confusability matrix.

closer to each other in the scalar matrix than in the earlier confusability matrix.

In regards to cross-linguistic comparability, the two-dimensional Russian similarity matrix closely resembles the English similarity matrix in terms of the Strong/Weak dimension. In both models, Skeptical, Polite and Confident are all closer to the weak end of the scale, while Concerned, Impatient and Enthusiastic are located closer to the strong end of the scale. It appears, therefore, that the connotations of the six attitudes are similar across Russian and English in terms of the amount of perceived Activity or Energy. In terms of semantic valence, however, there are salient differences in the perception of the concept of Confident, which in Russian has a more negative connotation than in English, where it is a much more positively viewed attitude. The other salient difference in perception is that towards Concerned. In Russian, Concerned is quite a strong or active attitude, but has a negative connotation, perhaps reflecting the anticipation by the speaker and/or listener of something going wrong. On the contrary, in English, Concerned is firmly a positive attitude, perhaps evoking an altruistic, caring sense of concern for others, inherent in the attitude's concept.

Finally, the Russian scalar similarity ratings do not correspond completely to the Russian confusability ratings except in the Positive versus Negative dimension, such that Enthusiastic, Confident and Polite are consistently at the Positive end of this scale, and Concerned, Skeptical and Impatient are at the other in both sets of data.

2.8 General Discussion

From the above confusability and scalar distance results, we can conclude that the overall placements of the six attitude concepts in relation to each other are fairly similar in Russian and English. The semantic notions of Enthusiastic, Polite, Impatient and Skeptical seem to be organized in similar ways in both Russian and English in one and two dimensions. The conceptual notions of Confident and Concerned differ the most across the two languages, Confident having more negative overtones in English, and Concerned more positive overtones, than in Russian.

Another illustration of the degree of match in concept across Russian and English can also be made by comparing the pairings between the most confusable attitudes. These matches and misses, as compiled from both the similarity and confusability judgements in Experiment 1 are illustrated in Table 2.10 below.

Table 2:10 Matches between Russian and English Confusions

Attitude A confused as Attitude B

Russian		**English**
Concerned as Impatient	≠	Concerned as Skeptical
Confident as Skeptical	≠	Confident as Enthusiastic
Enthusiastic as Impatient	=	Enthusiastic as Impatient
Impatient as Enthusiastic	≠	Impatient as Skeptical
Polite as Concerned	=	Polite as Concerned
Skeptical as Confident	≠	Skeptical as Concerned

The results of Experiment 1 and 2 provide empirical evidence of a high degree of cross-linguistic universality for the six target attitudes at the level of conceptual identity, at least in Russian and English. These results pave the way for a comparison of these potential confusion patterns to the actual patterns of confusion which occur during the vocal and verbal expressions of these same attitudes. That is, will the same patterns of potential confusion among the six attitudes occur in a comparison of how these attitudes sound to listeners? The impact that the sound of each attitude's expression has on native listeners of English, especially in terms of accompanying prosodic features, is the issue to be explored in the next chapter.

3. The Expression of Attitude

3.1 *Introduction*

Having established the conceptual or semantic relationships of the six target attitudes to each other in the minds of native Russian and native English speakers, the next step is to investigate the role that their actual expression has in the identity of these same attitudes.

At the level of basic human emotions and behaviours, it would make sense that they sound maximally different from each other in their various vocal and verbal instantiations, so that the speaker or a listener need not expend extra energy differentiating them before acting on them, especially given a life-or-death situation. The sound of each emotion should trigger the appropriate behaviour immediately. It is this 'sound' of the emotion in question that is the key factor in the successful transmission of the emotion to a listener as well. The sound-meaning correspondence for the more conventionalized character of attitudes is probably less clear-cut. The attitudinal customs and pragmatic display rules of different cultures and languages have gradually come into being and been shaped by these cultures over time.

This assumption is supported by evidence that adult learners cannot always depend on the prosodic patterns of their L1 when identifying emotions spoken in another language. Given this evidence, claims that intonation patterns or contours are completely universal in meaning are not supported. Certainly, many researchers hedge their bets when deciding whether and how much the properties of intonation or prosody are universal. Cruz-Ferreira (1987) does so when she states that "universal meanings may be associated with certain uses of pitch across languages, but particular meanings arise from the interaction of intonation with other linguistics systems in each language and these are to a large extent arbitrary" (p. 119). Thus, the question of universality of intonational meanings is usually confined to discussion of the broad uses of pitch. For example, Crystal (1975) concludes that a wide pitch range indicates an increase in positive implication, definiteness of commitment and emotional involvement. A narrow pitch range indicates the opposite; increased negative implication, non-commitment, and emotional non-involvement.

Ohala (1983,1984) suggests some universal grammatical and social meanings of pitch across languages. A high-rising pitch is used for questions; a low falling one for non-questions. A high pitch is used to show social attitudes such as politeness; a low pitch shows assertiveness. Such cross-linguistic similarities arise from a 'frequency code' that is common to the human species. This code associates high pitch with smallness of the 'vocalizer', who therefore poses no threat to the interlocutor, and will show submissiveness and subordination. Low pitch vocalizations are associated with a 'large vocalizer' and consequently with a dominant, aggressive and threatening message (1983:1-4).

Thus variations in emotional and especially attitudinal expression can appear at both the individual or personal level and the societal or cultural level. Sapir (1927), for example, was an early proponent of societal pressures on the individual or personal features of speech. Voice quality, pronunciation, lexical choices and 'vocal dynamics', the latter of which includes intonation, rhythm, and speech rate, combine to make speech part of an individual's personality trait.

In other words, "the voice is to a large extent an unconscious symbolization of one's general attitude" (p. 898). The features of our 'personality trait' are overlaid or regulated by social gestural rules. For example, "society tells us to limit ourselves to a certain range of intonation and to certain characteristic cadences" (p. 899). Thus the societal and the individual behavior work together to shape our speech. He says, "society has its patterns, its set way of doing things, its distinctive 'theories' of behavior, while the individual has his method of handling those particular patterns of society" (p. 894).

Clearly the prosody of attitude and emotion expression is subject to a number of forces, involving a degree of personal control on the one hand, and others which are beyond an individual's control, such as physiological or societal forces. These work together to shape the manner and degree to which prosodic features, including intonation, are used in the expression of particular attitudes within a given language and culture. It is reasonable to expect, therefore, that some conventions of attitudinal intonation may differ across languages, while others may be more similarly expressed from language to language. Another reasonable hypothesis is that both these differences and even similarities, depending on how well they match each other, will cause varying degrees of difficulty for adult second language learners to reproduce and interpret correctly.

The experimental questions explored in this chapter arise from this tension between the universal, socio-biological forces that must have originally shaped particular emotional expressions, and their more culturally 'refined' and linguistically arbitrary offspring, social attitudes. If the factor of concept or meaning is removed from the expression of attitudes for the listener, leaving only the sound of the expression, how similar will the attitudes sound in comparison to each other? Will these judgements resemble the judgements made solely on the conceptual meanings of the same attitudes? The extent to which the expression of *confidence* resembles *enthusiasm*, for example, will inform our predictions as to whether or not these two attitudes are destined to be confused with each other in native-nonnative speaker conversations.

The expectation is that the attitudes which sound alike, that is in the prosodic features of pitch height and change over the course of the utterance, will cause perceptual difficulties in distinguishing them from each other. These intonational differences are especially important as attitudinal cues given the fact that the same syntactic and lexical information can act as a carrier for completely different attitudinal information. In order to test the power that the sound of an utterance has in maintaining the distinctions among attitudes, an experiment was devised to test native English listener judgements on the similarity and difference in sound among the target attitudes.

3.2 Experiment 3 Similarity/Dissimilarity Sound Task

3.2.1 Method

3.2.1.1 Participants

Thirty-two native speakers of English ranging in age from 17 to 50 participated in the experiment. 26 were female, 6 were male. All were undergraduate students in introductory linguistics courses.

3.2.1.2 Stimuli

The experimental target utterance was a yes-no question with an added tag question, "We should water the plants every day, shouldn't we?". In order to ensure that listener judgements were being based on the 'sound' or prosodic features of the expression alone, grammatical and lexical features of the utterance were kept constant. The goal was to strike a balance between controlling for variables in the utterance which could affect the perception of the attitude being expressed, and yet to maintain as close to natural-sounding speech as possible. Researchers who have tested the expression of attitude have struggled with this balance as well over the years.

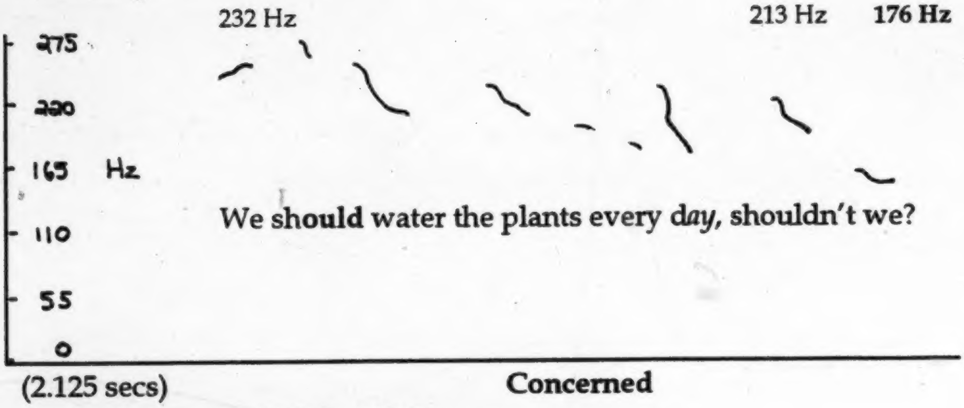
Experiments testing the reliability of intonation and prosody in conveying emotions, especially in the 50's and 60's, have used non-spontaneous speech material, from nonsense lexical items (e.g., Bortz, 1966), vowel sounds (e.g., Skinner, 1935) and the alphabet (Davitz & Davitz, 1959) in order to control for lexical content. And since then, acoustic filtering techniques which eliminate a range of frequencies, leaving only a buzz or hum, has been a common technique (e.g., Apple & Hecht, 1982; Fonagy, 1978; Ohala & Gilbert 1978) used to mask lexical content and force the listener to attend to the prosody of the utterance. The drawback to masking the lexical content of the test utterances is the consequent unnaturalness of the speech being rated for the listener and the unnaturalness for the listener of making a single syllable like /ti/ or /ay/ convey a single emotion . At the other end of the speech sample naturalness spectrum are the very few studies which have used spontaneous speech samples. One example is Huttar (1968) who used classroom and lecture utterances from one male speaker which were judged on nine 7-point Osgood scales for amount of various emotions. The experimental compromise here is the lack of control over the lexical content. In other words, the emotion judgements by listeners may not be based simply on the prosodic features, but on words or phrases whose semantic content invoke certain emotions for certain listeners. Others have compromised on the naturalness issue by using non-spontaneous samples of speech by professional speakers that are a paragraph in length. Here, as van Bezooyen (1984) points out (p. 12), the danger is that the intended emotion may not be maintained over the course of the whole paragraph. A good compromise to the naturalness issue that is used by van Bezooyen (1984) is non-spontaneous test utterances controlled for lexical content. A degree of naturalness is ensured because the utterance is a real, non-synthesized utterance made by a real speaker. The control on possible variables is ensured by having only one speaker, and one lexical phrase, the lexical content of which has been vetted by other native speakers as emotionally neutral.

A female native speaker of English, a linguistics graduate student with a clear voice quality and articulation, was asked to read the sentences typed on six 5" by 7" cards as naturally as possible into a microphone in a sound-proof booth. She was asked to speak so that she felt a listener would understand which attitude she was feeling. The final version of each utterance was mutually agreed upon by both the experimenter and the speaker as the best exemplar of each of the six target attitudes (*Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical*).

A tag question was added onto the body of the yes-no question for several reasons. First, it would assist the listener with additional lexical information, which in an English tag takes on the opposite semantic and syntactic polarity from the body of the utterance. It is also provides more of a message on which to overlay intonation. Not only does the tag perform a pragmatic function in its request from the listener for confirmation (rising pitch tag) or expectation of agreement (falling pitch tag), there is accompanying attitudinal information directed particularly at the listener. Uldall (1960), for example, found that the meaning a final rise or fall carried a significant part of the emotional meaning, depending on the syntactic type of the utterance. For example, a statement could be rated as pleasant with either a falling or rising pitch at the end, whereas on questions and commands, final rises tended to be rated as pleasant in emotion. The ESL textbook 'Accurate English' states that a rising tag may indicate doubt on the part of the speaker, that "the speaker is very concerned or hopeful" (p. 239). A falling tag, on the other hand, "is more demanding and allows little disagreement"(p. 239) on the part of the listener. Since the tag carries an attitudinal load of its own, it might be expected to interact with the attitude of the expression itself, either reinforcing the attitude's force or dampening it, for example. A rising tag on a polite utterance may make it sound more polite by conveying uncertainty on the part of the speaker. This would be equivalent to taking great pains not to impose one's views on the listener, expressing diffidence for the listener's view, and thereby increasing the utterance's positiveness on the semantic scale. A falling tag, normally imposes itself more aggressively on the listener, threatening the listener's 'face'. In a negative attitude, the falling tag may therefore reinforce the negativity already there, such as in an expression of impatience. Here the falling tag expresses the speaker's certainty that he or she will be agreed with, and brooks no opposition to the question, or in this case the strong suggestion that the plants be watered every day. Other interactions of the pitch contour of the utterance's body and that of the tag are of course possible. What attitudinal effect does a falling tag, which normally conveys certainty, have in conjunction with a positive-sounding attitude, such as Confident? How does a rising tag, conveying uncertainty, affect a fundamentally negative-sounding attitude such as Skeptical?

The fundamental pitch contours of each utterance were illustrated visually using the C-Speech program. This was done in order to have a basis of comparison of the pitch range and change of the utterances as a whole and at certain points in the utterance in which the use of pitch by the speaker might be used contrastively. The contrast in pitch levels of the six contours was most salient at the juncture of the main clause "every day" and the tag question "shouldn't we?", as well as in the tag question itself. Another salient juncture was between the main clause and the tag question and the relation of the tag question pitch range to the preceding word, "day". In the following description, the utterances are divided into the three Negative and Positive attitudes with the accompanying changes in Hertz level at these junctures as indicated on the y-axis. The x-axis forms the pitch baseline. The pitch range in the body and the tag are indicated with the highest pitch peak in Boldface font and the lowest in italics. The rate of each expression in seconds is also given.

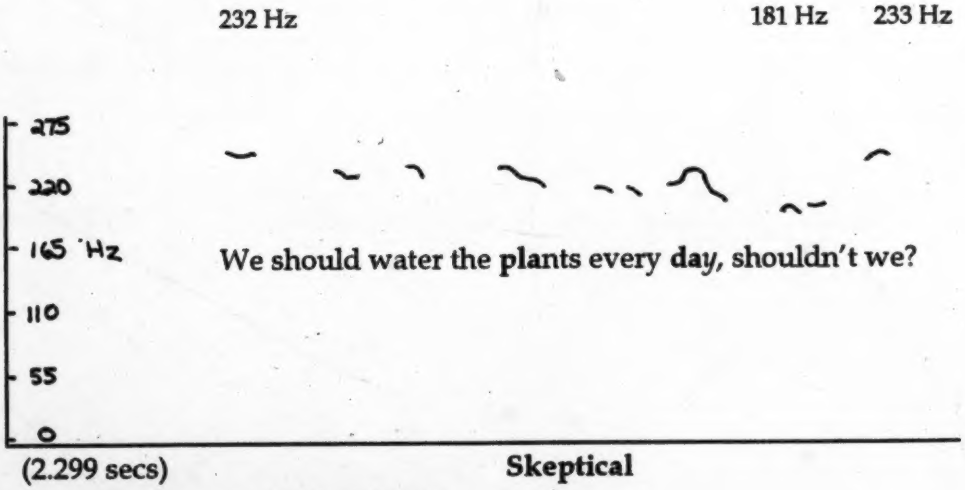
Negative



Body pitch range- 273 Hz-179 Hz

Tag pitch range- 247 Hz-159 Hz (fall in pitch)

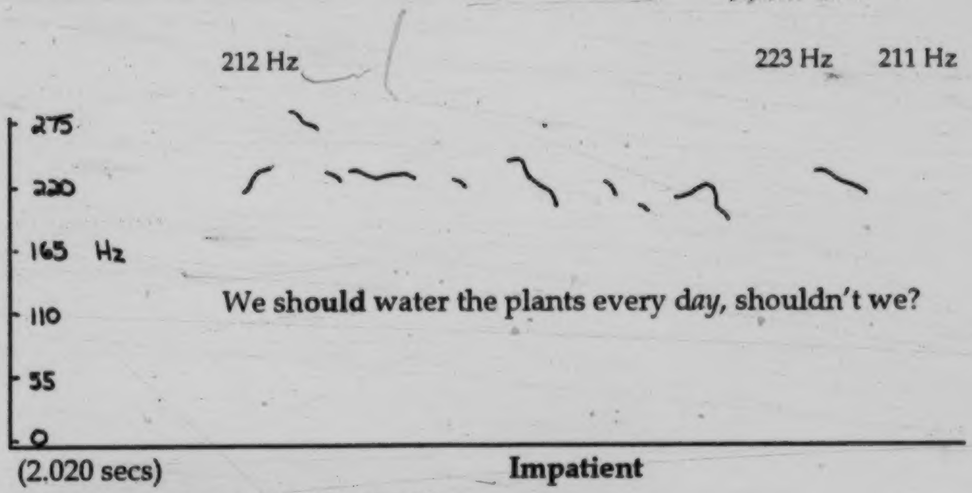
Figure 3-1 Pitch contour-Concerned



Body pitch range-232 Hz-178 Hz

Tag pitch range- 233 Hz-181 Hz (rise in pitch)

Figure 3-2 Pitch contour-Skeptical

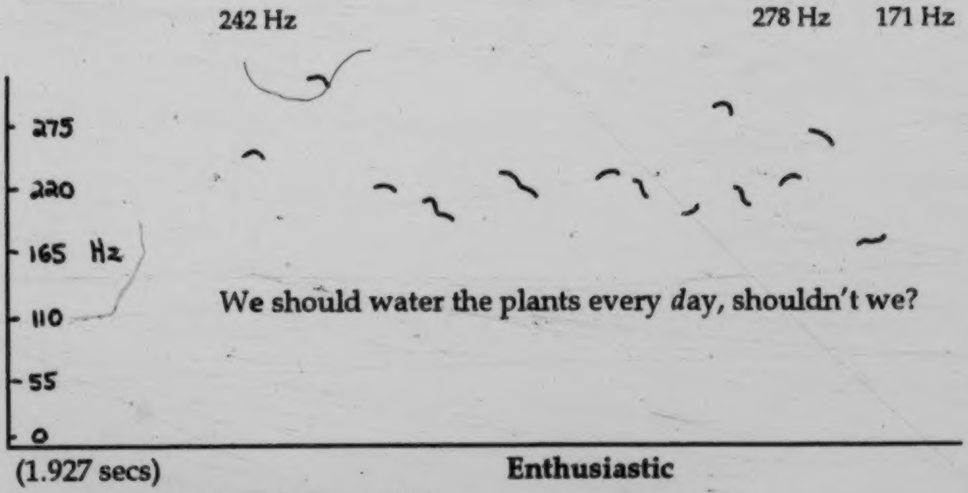


Body pitch range- 279 Hz-173 Hz

Tag pitch range- 223 Hz-211 Hz (slight fall in pitch)

Figure 3-3 Pitch contour-Impatient

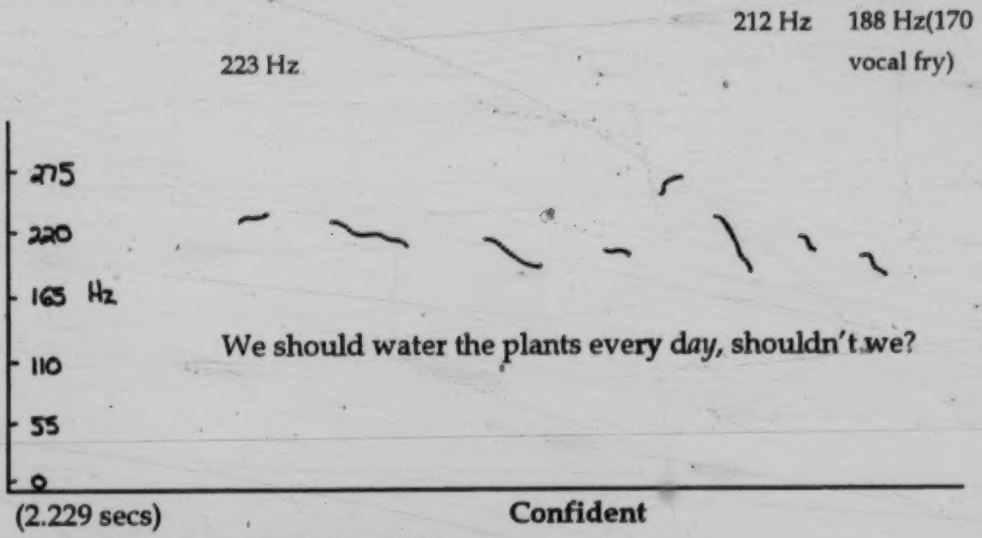
Positive



Body pitch range- 301 Hz-196 Hz

Tag pitch range- 278 Hz-171 Hz (high fall in pitch)

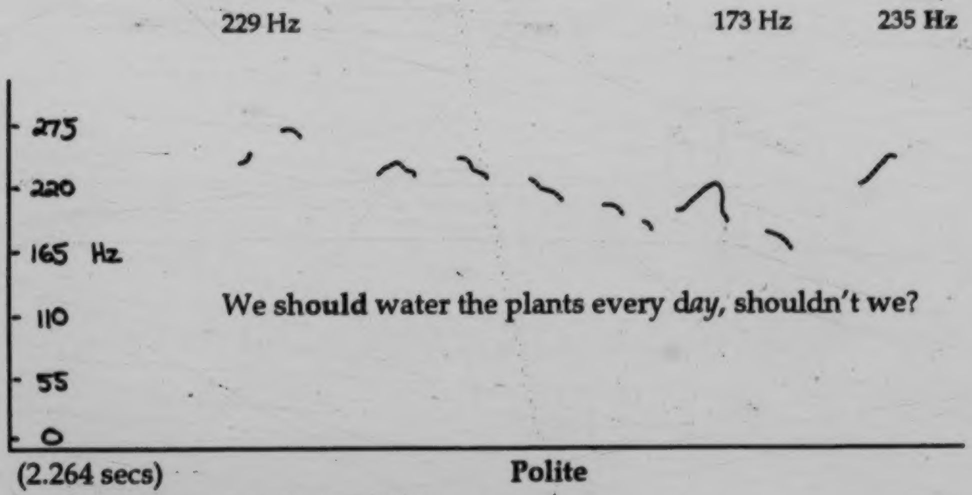
Figure 3-4 Pitch contour-Enthusiastic



Body pitch range- 265 Hz-152 Hz

Tag pitch range- 212 Hz-188 Hz (fall in pitch)

Figure 3-5 Pitch contour-Confident



Body pitch range- 261 Hz-163 Hz

Tag pitch range- 173 Hz-235 Hz (rise in pitch)

Figure 3-6 Pitch contour-Polite

Participants were not given any information on the six target attitudes either before or during the experiment. Written instructions informed them that they would hear six sentences with identical vocabulary spoken by one female speaker. They were asked to listen to all the utterances and give their opinion as to which two sentences sounded the most similar to each other, and which two the most different. They were also told they were free to listen to each sentence as many times as they wished and that it might be easiest to compare two sentences at a time.

3.2.2 Materials and Procedure

The experiment was run using Psyscope 1.1, a computer program for designing and running experiments. The participant was seated in front of the computer, wearing headphones. The numbers one to six were presented on the first screen. Pressing the corresponding number one to six on the keyboard prompted the second screen, a visual presentation of that number by itself on the screen while simultaneously one of the six utterances was presented aurally through headphones. Participants listened to all the utterances and then wrote down on the sheet provided which two utterances (sentences) they thought were most similar to each other, and which two the most different.

On average, the task took approximately 15 minutes to complete. In order to compensate for a possible ordering effect, such that two utterances would be judged in a certain way because they occurred beside each other in the order, two separate orders of utterances were used, the first alphabetical and the second semi-randomized so that each attitude occurred next to two different attitudes from the alphabetized order. The experimenter stayed with the participant for a few minutes to make sure the procedure was understood and followed.

3.2.3 Results

Verbal debriefings and the pencil-and-paper notes used in the decision-making of ten participants revealed that they used a number of different features of the utterances as the basis for comparison. The types of prosodic features that participants focused on were stress on certain words, rate of the whole utterance, and tone of voice, for example, soft or clearly enunciated. The most common comparison point of these three features appeared to be perceived stress differences on the final words of the utterance, 'every day, shouldn't we?' Another strategy was the use of a grammatical comparison of the utterances as more or less statement-like and lecture-like, versus more question-like. One participant reported her judgements to be based on the perceived emotional colourings of each utterance, such as indecisive versus assertive-sounding.

3.2.3.1 *Most similar-sounding attitudes*

The consensus for the two utterances that sounded the most similar was 76% (25/32) of respondents for Polite and Skeptical. The other pairings came a distant second, third and fourth, as reported in Table 3.1. Four respondents thought Impatient and Enthusiastic sounded most similar to each other. Two respondents thought Impatient and Concerned sounded most similar, and one thought Impatient and Confident sounded most similar. Table 3.1a and 3.1b below reports full results.

Table 3:1 Most similar attitude pairs (N=32)

Pairing	# of responses	% of responses
Skeptical/Polite	25	78
Impatient/Enthusiastic	4	12.5
Impatient/Concerned	2	6.3
Impatient/Confident	1	3.1
Total	**32**	**100**

Table 3:2 Frequency matrix-similarities

	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	-					
Confident	0	-				
Enthusiastic	0	0	-			
Impatient	2	1	4	-		
Polite	0	0	0	0	-	
Skeptical	0	0	0	0	25	-

The frequency data from Table 3.2 were submitted to multi-dimensional scaling analysis and are presented below in one-dimensional plot in Figure 3.7 below. In order to present the similarity judgements iconically, so that higher frequencies for two attitudes would correspond to shorter distances on the plots, frequencies were entered using negative numbers. Thus, the farther away from zero the score is for any two attitudes, the closer together they are represented on the visual scale.

The main effect in the 1-dimensional scale is the polarization of Polite and Skeptical at one end of the scale, at a maximum distance from the other four attitudes. The relative ordering of Enthusiastic, Impatient, Confident, and Concerned is difficult to interpret, however, because of the preponderance of zeros in the frequency data. For example, although Impatient was judged by seven respondents as most similar to Confident, Concerned or Enthusiastic respectively, it is impossible to tell that Enthusiastic actually received no votes as most similar to either Concerned or Confident, belying its location on the scale close to these latter two attitudes.

concerned confident impatient enthusiastic polite/skeptical
-1.0 -.5 0.0 .5 1.0 1.5

Figure 3-7 Perceived similarities: 1-dimensional scale

The preponderance of zeros in the frequency data makes it unlikely that a second spatial dimension will reveal a useful interpretation of the data.

In terms of the pitch trace identities of the target stimuli, Polite and Skeptical do resemble each other to a great extent. They are the only two utterances to have a pitch rise on the tag; all the others contain pitch falls at this point. Both have a rise-fall on 'day', and a rise from 'shouldn't' onto a high pitch on 'we'. The difference is in amount of rise, which in the skeptical utterance is a range change of 89 Hz and in the polite utterance is a 73 Hz from 'shouldn't' to 'we'. The second choice for most similar, Impatient and Enthusiastic both have pitch falls on 'shouldn't' from the low 200's and a fall on 'we', and a downstepping of overall pitch level over the whole tag.

3.2.3.2 *Most different-sounding attitudes*

There was much less agreement on which two utterances sounded the most different from each other. 7 out of the 32 (22%) thought that either Confident and Concerned, or Confident and Polite sounded the most different. Second place was claimed by the pairing of Confident and Skeptical, by 16% of the respondents. Table 3.3 and 3.4 below report the results in percentage and raw frequencies respectively.

Table 3:3 Most similar-sounding utterances (N=32)

Pairing	# of responses	% of responses
Concerned/Confident	7	22
Confident/Polite	7	22
Confident/Skeptical	5	16
Confident/Enthusiastic	3	9.4
Skeptical/Impatient	3	9.4
Impatient/Polite	2	6.3
Skeptical/Polite	2	6.3
Enthusiastic/Concerned	1	3.1
Impatient/Concerned	1	3.1
Polite/Concerned	1	3.1
Total	32	100

Table 3:4 Frequency data-perceived differences

	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	-					
Confident	7	-				
Enthusiastic	1	3	-			
Impatient	1	0	0	-		
Polite	1	7	0	2	-	
Skeptical	0	5	0	3	2	-

The results for 'most different' should ideally show a direct negative correlation to the similarity data. In other words, since Polite and Skeptical are considered the most similar in sound to each other, they should show up in the difference data as relatively little distance from each other. Impatient and Enthusiastic should be less close together but not at a great distance from each other. This is precisely the situation which occurred. In the plot shown in Figure 3.8, greater difference between two attitudes is visually equated with greater distance. The similarity plot in Figure 3.7 shows Confident at a maximal distance from Polite and Skeptical. Although Polite and Skeptical did not receive the lowest scores for sounding the most different, they are still very close to each other in distance on the difference plot. The status of Impatient and Enthusiastic in the similarity versus difference results is slightly at odds. The difference data has this pair scored with the most zeros, which places them in a neutral middle position from the other attitudes. In the similarity plot they are both much closer to the other four attitudes. This result is probably again due to the great number of zeros which both Impatient and Enthusiastic received.

The one-dimensional difference scale is visually easier to interpret than the corresponding one-dimensional similarity scale simply because there is more variance in the frequency data. Thus, for example, dimension 1 might be posited as a Strong-Weak dimension with Skeptical, Concerned and Polite at the weak end, and Confident at the strong end.

Skeptical/Polite/Concerned **Enthusiastic** **Impatient** **Confident**
-1.0 -.5 0.0 .5 1.0 1.5 2.0
Weak→ **←Strong**

Figure 3-8 Perceived differences: 1-dimensional scale

This data on differences in meaning allows us to test how closely related the meaning similarities are to the sound differences of the target attitudes. In experimental terms, the ideal would be for these two sets of data to be orthogonal. An insignificant degree of relatedness would confirm that the experiments had been successful in measuring two phenomena, the meaning of an attitude, and how it sounds, and their effects on listeners separately. If, as presumed, the expressive and prosodic shape of attitudes have been arbitrarily determined to a great extent by cultural display rule pressures, there should consequently be a commensurate amount of arbitrariness in the relationship between the 'sound' and the 'meaning' of an attitude.

A Spearman Rank-Order correlation coefficient was therefore calculated on the pairs of attitudes identified by at least one respondent as most different-sounding (see Table 3.5) as compared to the same pairs' frequency scores for confusability in meaning. The confusability scores are acting as indicators of similarity among the pairs in this case. The more two attitudes are similar to each other in meaning, the more often they would be expected to be confused with each other. Table 3.5 shows the frequency data and the rho of .19. This score indicates that no correlational relationship between the two factors. In other words, an orthogonal relationship exists between how different the attitudes sound from each other, and how similar they are to each other in meaning.

Table 3:5 Correlation between similarity in meaning and difference in sound

Pair	Difference in sound	Confusability/ Similarity in Meaning
Concerned/Confident	7	6
Confident/Polite	7	6
Confident/Skeptical	5	6
Confident/Enthusiastic	3	1
Skeptical/Impatient	3	3
Impatient/Polite	2	10
Skeptical/Polite	2	6
Enthusiastic/Concerned	1	6
Impatient/Concerned	1	9
Polite/Concerned	1	2
Correlation (rho)		.19

The intonational differences among the target attitudes is playing a large role in difference judgements. For instance, the pairs considered to sound most different from each other contrast the falling pitch of Confident, on 'day', 'shouldn't' and 'we, with rising pitches on 'shouldn't' and 'we' on Polite and Skeptical. The pitch changes on the Concerned utterance resemble the falling pitches on Confident 'day', 'shouldn't' and 'we'. It appears that the grammatical identities of these utterances are serving as the defining criteria for the amount of similarity and difference. The utterances with a question's rising tag are being judged as similar, as are the two statement-like falling pitches of Impatient and Enthusiastic. As well, it is likely that the differences in 'tone of voice' are playing an additional role in the difference judgements, as while both Concerned and Confident have falling terminal pitches as a statement would, Concerned nevertheless has an overlying whining tone that maximally contrasts with the definitive, non-whining tone of Confident.

3.3 *Discussion*

The English native listener judgements of the sound of the target expressions can now be compared to the native listener judgements based on the similarity and confusion judgements of the underlying semantic concepts in the preceding chapter. If the conceptual judgements match the sound judgements, then the pairs of attitudes found to be most similar in sound should show up as the potentially most confusable and most similar in underlying concept.

In the case of the most similar-sounding pair, Skeptical and Polite, there is a match with those most potentially confused with each other, occurring as part of the cluster of Concerned, Polite and Skeptical. As for the pairs considered to sound most different, that is, Confident and any of Concerned, Polite, or Skeptical, if sound and conceptual meaning are good matches with each other in predicting listener behaviour, none of these three pairs should show up as potentially confusable in meaning. Here there is a good match as well, as in one-and two-dimensional conceptual space Confident is located at a maximal distance from all three of Concerned, Polite, and Skeptical.

In terms of confusability, the three most different-sounding pairs with Concerned, i.e., Confident, Polite, and Skeptical, never occur as pairs most likely to be confused with each other at the conceptual level by native speakers of English. This is all the more striking considering that only 16% to 22% of the respondents were in agreement about the status of these attitudes as sounding most different from each other. On the other hand, the most similar-sounding pair, Polite and Skeptical, which 78% of respondents agreed upon, *also* never occurs as two most likely to be confused conceptually with each other by native speakers of English. This weakens the strength of the otherwise fairly good level of comparability.

Overall, however, three of the six pairs of attitudes are considered 'confusable' at both the conceptual level and the sound level, to varying degrees. These pairs are; Polite and Skeptical, Impatient and Enthusiastic, and Impatient and Confident. It is clear from the intonation contours of Polite and Skeptical that they are very similar, leading to possible confusion. Why are they also considered confusable at the conceptual level? In the two-dimensional confusability scale for conceptual space, both Polite and Skeptical are grouped together with Concerned at the 'weak' end of what looks like a strong-weak dimension. They are contrasted to Impatient, Confident and Enthusiastic at the other, 'strong' end of the scale. The similarity between Polite and Skeptical appears to lie in their low strength or energy level. This result also correlates nicely with the hypothesized semantic identities of the target attitudes outlined before in chapter two as both being nearer the Passive end of the scale.

The results from the sound judgement experiment, together with the conceptual meaning experimental results tell us that sound and meaning have separate effects on native speaker judgements of the target attitudes and their relationships to each other. Furthermore, since certain matches in degrees of similarity and confusion are occuring during both these types of judgements, one might suspect that the factors of sound and meaning probably overlap with each other to a certain degree to produce the same effect in a listener. However, simply combining the effects of sound and meaning from separate sound and meaning judgements may not capture the interactional effect of these two factors in conveying attitudinal information. A more reliable method would be to combine the sound and meaning of an attitude in an actual linguistic expression and measure their combined attitudinal effect on a listener. Listeners would be explicitly aware of both the prosodic and the conceptual meanings of the utterances they were hearing. This next and final phase of the study was implemented in two separate experiments. The first experiment was designed to test the abilites of both native speakers of Russian and English living in Canada to correctly perceive and produce English attitudes. The second experiment was designed to test the perception abilities of native speakers of Russian living in Russia.

4. The Interaction of Intonation and Attitude

The interaction of intonation and attitude has been considered in the literature from various empirical vantage points. The first type of investigation involves determining just how much affective information prosody and/or intonation is responsible for in the utterance. Experiments of this type may simply involve native speakers of one language making perception judgements on utterances by other native speakers which have been controlled for various prosodic features, for example. Cross-cultural and cross-linguistic variations on these perception experiments depend on which factor, the attitudinal information or the intonational information, is the focus of interest. The latter focus compares if and how well the intonational system of one language translates into another language. The former focus concentrates specifically on the ability of emotional and attitudinal expression to cross language boundaries. Both types of investigation use perception judgements of monolingual speakers of various languages.

The second main source of empirical information on the interaction of attitude and intonation stems from the perception and production abilities of the L2 learner. This research has been done by two different groups of researchers. Linguists are interested in the origin and nature of a foreign accent, and intonation's role in the degree of accent perceived by L1 listeners. ESL researchers and educators have studied the overall contribution that prosodic features, including intonation and voice quality, make to faulty production of English attitudes and have made pedagogical suggestions for improving ESL learner success at this skill.

Each of the above empirical sources of information will be discussed before describing the present study's empirical investigation on the interaction of attitude and intonation.

4.1 *Role of Prosody in Attitude and Emotion Expression*

As Crystal (1975) says, "intonation's functional complexity, is in fact well recognized in the literature - as a signal of grammatical structure, of emotional expression, of semantic organization, of social role" (p.6). Crystal demonstrated this complexity and the dependence of intonation for its emotional interpretation on speaker, listener and context with an experiment. Six speakers of English read three sentences with 20 different attitudes (e.g., *excited, dismayed, puzzled, etc.*). The 20 best exemplars were then rated by the same six speakers in a forced-choice task. No listener obtained a score of more than 60% correct. Several weeks later this listening task was repeated using an open-ended questionnaire. This time listeners gave over 100 different labels to the utterances, and the accuracy rate dropped to 20%.

An early and classic investigation to determine whether native speakers could agree on the 'meanings' of intonational contours was done by Uldall (1960). She synthesized 16 different pitch contours onto four different synthesized sentences, a statement, yes-no question, wh-word question and command. She used synthesized speech because "a human speaker making such an array of intonation on the same sentence would at the same time make changes in length, stress and tempo (p. 224). 12 native speakers of American English rated the utterances on 10 Osgood scales, such as Bored/Interested, Deferential/Arrogant, Emphatic/Unemphatic. Results were grouped under three overall scales, Pleasant/Unpleasant, Interest/Lack of Interest, Authoritative/Submissive. There was a wide scatter of scores over the scales, such that bored/interested in all four cases was the scale on which the contours varied the most. A factor analysis showed that the pleasant/unpleasant factor accounted for more than 50% of the variance, followed by the interest factor at about 20%, and authority/submission at 8-13%. Overall, she found more variation than expected in the interaction of sentence type and meaning, as she had supposed that "the emotional effect of a given contour would be more nearly the same on the different sentences than was in fact the case" (p. 231).

Apple and Hecht (1982) also investigated the particular role of intonation in conveying affect. In a listening experiment, speakers role-played four discrete emotions (*happiness, sadness, anger, surprise*) vocally in utterances whose semantic content was either emotionally appropriate or affectively neutral. An interaction between semantic content and emotion was found, such that semantically emotional material aided in the identification of sadness but not for anger, for example. When the semantic content was filtered out listeners were able to identify three emotions of the four correctly above chance level. Collier (1993) reports an experiment by Vroomen, Collier and Mozzicanacei in which judges were successful in recognizing the intended emotions of actors simulating seven emotions *(neutral, joy, boredom, anger, sadness, fear and indignation*) on two utterances. The utterances expressing joy, sadness, fear and indignation, were then stripped of either their intonation or duration/timing characteristics or both, resulting in monotone and/or monorythmic utterances. When both duration and intonation were absent, it was impossible for listeners to correctly identify the emotions. When intonation was put back onto the utterance based on English intonation rules, accuracy rose to 55%. When both intonation and timing were put back onto the monotone utterances, but voice quality was absent, accuracy rose to 81%. Their results confirm the importance of prosodic features in conveying emotion; "it appears that duration and intonation can convincingly convey the speaker's emotion or attitude by fairly straightforward deviations from the 'default' temporal and melodic patterns of an utterance"(p.74).

Further explorations in the interaction of prosody and emotion have been made by examining which prosodic features are the ones actually conveying the affect. Scherer and his colleagues have addressed this issue in experiments which focus on a range of vocal parameters such as voice quality, pitch level, loudness, pitch range, and contour type. For example, Scherer, London, and Wolf (1973) found that the expression of 'confidence' in texts read aloud was best conveyed by increased loudness of voice, infrequent short pauses and a higher pitch level. This matches Crystal's findings (1975) that increased or wide pitch range equals an increase in positive implication, definitiveness of commitment and emotional involvement. A narrow pitch range on the other hand, signals an increase in negative implications, non-commitment, and emotional non-involvement.

By the 1980's, Scherer and his colleagues were testing two specific models on the interaction of affect expression with prosodic variables. Scherer, Ladd and Silverman (1984) investigated whether the *covariance model* or the *configuration model* best suited the expression of affect in German. In the *covariance model*, speaker-state information and linguistic meaning are expected to be encoded independently of each other into "quasi-parallel vocal channels" (Goldbeck *et al* 1988: 127). In the *configuration model,* both the verbal and non-verbal cues operate by exhibiting 'categorical linguistic structure' to properly convey grammatical and affective information. In other words, different mixes of intonational variables will convey different combinations of syntactic or affective intonation (Goldbeck, Tolkmitt, and Scherer 1988: 126-127). In two judgement experiments, native German listeners rated filtered and non-filtered recorded utterances and written transcripts for nine adjectives (*polite, impatient, reproachful, doubtful, friendly, insecure, relaxed, understanding and aggressive*). The researchers' conclusion was that features of both models were needed to accurately account for the subjects' judgements. Non-verbal cues such as intonational contour type seem to convey affective information only in interaction with grammatical features of a text. Voice quality and fundamental pitch level, on the other hand, can convey affective information independently of verbal or lexical content.

The next step Scherer and his colleagues took was to study the non-verbal or paralinguistic cues of intonation contour, voice quality and fundamental pitch range, both individually and in combination with each other. Ladd, Silverman, Tolkmitt, Bergmann and Scherer (1985) investigated the specific contribution each of these cues made in signalling speaker affect in German. In two experiments, it was hypothesized that these cues would have at least partially independent functions; i.e. that differences in contours would be most effective in signalling differences in cognitive attitudes (following Pike 1945; O'Connor and Arnold 1961]; and that changes in pitch range would tend to effect most change in degree or intensity of affective judgements.

Listeners rated utterances on scales of arousal (e.g., *relaxed/aroused, annoyed/content*) and cognitive attitude (e.g., *emphasis, cooperativeness, contradiction, surprise and reproach*). Results showed that pitch range and contour, and less clearly pitch range and voice quality, had independent effects on utterance judgements. In general, the differences in acoustic variables functioned independently of differences in verbal content or utterances and among speakers. In a follow-up experiment, Bergmann *et al* (1988) systematically varied the acoustic parameters of FF range, intensity, intonation contour shapes, and segment duration in utterances which were judged for amount of emotional state on a 7-point scale. Changes in fundamental pitch range produced strong emotion/attitude effects. For example, a broad range signalled high arousal, and a narrow range, sadness. High intensity signalled aggression and short segment duration signalled joy, whereas long duration signalled sadness.

The above research provides empirical evidence for concluding that intonation functions as both a crucial indicator of emotional expression and that it does not operate best in a vocal or verbal vacuum. All prosodic features, such as stress, voice quality and intonation, grammatical features and semantic information operate together in the expression of emotional information to the listener.

4.2 *Cross-Cultural Studies of Intonation Systems*

A small number of studies have examined to what extent intonational meanings cut across language boundaries. Essentially, this is a test of Lieberman's (1980) assertion that "an angry person does not raise his voice in English or in German but simply in anger" (p.

34). The opposing view is proffered by Scherer (1979), who says that, "the existence of so-called display rules offers clear proof that there is room for convention and ritual in the expression of (physiologically anchored) emotion and attitude"(in Couper-Kuhlen:174). Experimental research has tested whether intonation meanings are language and culturally-bound, or are more language-universal in nature. Researchers deliberately allow intonational and prosodic cues to serve as the key conveyer of emotional meaning for listeners of various languages. In these experiments, segmental information is deleted from test utterances, leaving the intonation to serve as the defining feature of a language.

One example is Ohala & Gilbert (1978), who had native listeners of English, Japanese and Chinese try to identify their own language versus the other two based just on a laryngealized buzz. The listeners were successful a significant portion of the time, especially the bilingual listeners, who were significantly better than the mono- and trilingual listeners at the task. They concluded that the universality of prosody across languages overrides the prosodic differences between tonal (Chinese) versus accent languages (Japanese, English) and between stress (English) versus syllable-timed (Japanese) languages.

Grover, Jamieson and Dobrovolsky (1987) investigated the contribution that one's native intonation makes in identifying a speaker as native or non-native. Their test utterances, taken from native French, English and German speakers varied in continuative intonation slopes. The listeners, also from these language groups, did not choose intonation patterns with slopes based on their native production as more native-like than those based on non-native data. These researchers speculated that the intonation differences were too small and in too isolated a context to be perceptually salient to listeners.

4.3 *Cross-Cultural Attitude and Emotion Expression: Perception and Production*

Shen (1990) optimistically concludes that perception and production of intonation contours is a universal human capability (p. 131). Bolinger (1978) might agree. He says that of all aspects of language, intonation is the most likely candidate for universality. (in de Bot 1986:112) The issue of how universal the feature of intonation is to speakers of all language types furnishes information useful to the issue of L2 intonation learnability. In other words, it would help in the search for reasons why adult L2 learners have so much difficulty mastering new intonation systems, if the extent to which intonation patterns, or their components, function universally across languages to convey similar grammatical or attitudinal meanings could be determined. The logic is that, if intonation were language universal in nature, then learners should not face too many problems when they learn to speak a different language. Bolinger warns that interference from the L1 would be very difficult to detect in this case (in de Bot 1986: 112). However, if intonation is much more language-dependent and unique, then the potential for confusion and stubborn 'intonational accents' should be much higher.

One method of addressing the issue of universality in the expression of emotions and attitudes has been to examine the cross-cultural abilities of listeners to identify the emotional message when spoken by non-native speakers of a language. van Bezooyen (1984) tested the ability of monolingual speakers of Dutch, Taiwanese and Japanese to categorize Dutch utterances expressing ten different emotions. The Dutch group of listeners performed the best, significantly better than the other two groups. Each group also had significantly differently clustered patterns of errors. Beier & Zautra (1972) compared the ability of American English, Polish and Japanese students (the latter unacquainted with English) to identify six American English expressions of emotions and attitudes (*happiness, fear, sadness, anger, indifference and flirt*) in utterance lengths ranging from 'hello' to a long sentence. The Polish and Japanese subjects increased their accuracy as the length of utterance increased, naturally enough, but also eventually reached the same level of accuracy as the Americans themselves. Albas, McCluskey, and Albas (1976) low-pass filtered Anglo-Canadian and Cree utterances expressing happiness, sadness, love or anger and had 40 subjects of each language group try to identify them. Each group was able to identify their own language significantly better than the other but in this case the patterns of confusion among emotions were similar across the two cultures. Happiness and anger, both high on a scale identifying amount of activity, were confused with each other. Sadness and love, both low on the activity scale, were confused with each other.

4.4 *L2 Learner Difficulties with L1 Prosody Production*

Researchers and educators have long recognized the contribution that incorrect prosody has in making a second language speaker sound 'non-native'. But the seriousness of the effect of incorrect or inappropriate prosody in L2 learner speech can go beyond sounding 'non-native' to seriously impairing communication between native and non-native speakers of a language. The need to pay more attention to this prosodic danger is probably expressed most strongly by Chreist (1964) who equates foreign accent to defective speech. In his view, both a foreign accent and defective speech cause the speech to be taken notice of and cause "evident interference with the communicative process" (p. xvii). He stressed that this 'defective speech' is largely caused by ignoring faulty prosody in a foreign accent and that "second language learning requires a change in patterns of intonation, stress, rhythm and meaning, in addition to changes in [ ] phonemes. (p. xv). Unfortunately for the adult second language learner, Chreist (1964) warns that "these language patterns are habituated reactions which have been acquired in an intimate cultural setting and their replacement will not be easy" (p. xv). Over 20 years later, the warnings, by both linguists and ESL educators, have not changed in the least. Cruz-Ferreira (1989) calls intonation "still the last 'stronghold' of a foreign accent in speaking an L2, and this is true even of speakers who otherwise have perfect or near-perfect command of the phonetics of L2". (p. 24) The difficulty that adults have learning and mastering an L2 prosodic system lies in the "empirically substantiated observation that hardly any foreign language learners of over 11 or 12 years of age manage to acquire such proficiency of pronunciation in the foreign language that they are consistently taken for native speakers of it" (van Els & de Bot 1987 :147).

Aside from the ostensibly undesirable state of sounding non-native, it is when the incorrect use of prosody in the L2 results in miscommunication of the attitudinal message (why is this person so angry at me?) and the syntactic form (was that a question or a statement?), that it becomes a true impediment to communication. This phenomenon is itself worthy of further exploration to determine what it is that prosody, and especially intonation, normally contribute to a message transmitted between a speaker and hearer. This is the first step in assessing a breakdown in communication. The nature of this breakdown raises several interesting questions; how are speakers producing the incorrect prosody?; what are hearers perceiving rightly or wrongly?; and finally, what, if anything, can be done about the problem?

Clear empirical evidence exists for the mistakes that learners make with L2 intonation patterns. Willems (1982) found that Dutch learners of English replace pitch falls by rises in over 10% of the time, and that the pitch range the learners use is considerably narrower than that of native speakers. Backman (1979) had linguists judge and analyze spectrographically the yes-no questions, wh-questions and declaratives of 8 Spanish-speaking adults learning English. The verdict was that there were three major prosodic problems with the utterances. One, the pitch range used was too narrow, two, the prominence or accent placement was too far to the left and three, the unstressed words and syllables were too low in pitch. These results provide Backman with suggestion for some typical American contour characteristics for learners to follow or imitate. Interestingly, she could not end with a satisfactory account of just why these learners uttered the prosodic mistakes they did, because she concludes that the contrast between English and Spanish intonation did not explain many of the learner errors. Thus, we have evidence here that learners are using their own system of intonation and prosody, that is, a type of intonational 'interlanguage', which contains features of both the L1 and L2. Backman (1977) poses the issue as, "what difficulties arise because of contrasts between the languages and what difficulties are due to the perceptual and cognitive mechanisms of the language learner?" (p. 34) This question of course reflects the old debate on L1 interference and whether errors are the result of negative transfer/ interference from the L1 system, or a result of universal developmental types of errors, reflecting stages that all learners go through before mastering the L2 system.

More recent empirical evidence suggests that non-native speakers of a language *are* using their L1 prosodic patterns while speaking the L2, based on evidence that native L2 listeners can listen to and identify these speakers as non-native using only prosodic or suprasegmental cues like intonation. Ioup (1984) showed that native speakers of Arabic and Korean could tell Arabic and Korean ESL speakers apart on hearing their spontaneous and prepared speeches, but not from reading the learners' speech or from hearing it read by someone else. The conclusion was that learners are making phonological (including prosodic) transfer errors. Munro (1995) investigated the specific effects of learner prosody on 'nativeness' judgements. Utterances of non-native English speakers were made unintelligible via low-pass filtering, which takes out only the segmental or lexical message and leaves the prosodic information intact. Native English-speaking subjects were nevertheless able to successfully pick out the non-native English utterances when they were randomly mixed with native English utterances. Munro and Derwing (1995a) found a correlation of 'goodness of intonation' with degree of accentedness and comprehension ratings of Mandarin speakers' English for a majority of native English listeners. Likewise, Anderson-Hsieh (1992) found a correlation between ratings of deviance in segmentals, prosody and syllable structure with pronunciation ratings in NNS speech as perceived by ESL teachers. Prosodic variables were found to be significantly related to global pronunciation. Earlier, van Els and de Bot (1987) similarly showed that native Dutch listeners, (teachers of Dutch as a second language) were able to identify the native language of low-pass filtered utterances in Dutch when the speakers were native Dutch, English, French or Turkish. Their results allowed them to conclude that, "a foreign accent also shows in a foreign language speaker's intonation" (p. 154).

These perceptions of a foreign accent by native speakers of a language provide strong evidence that the L1 system is having an effect on the non-native speech. This suggests that the non-native or L2 learner in question has not acquired the correct L2 intonation patterns along with their acquisition of the segmental aspects of language. Whether this is a result of having learned the L2 past the biologically determined acquisition threshold and being blocked by a 'phonological filter' (Shen, 1990) or because they were simply never taught it, or taught it properly, remains to be seen. Cruz-Ferreira (1987) says, "Correct (re-) production of an intonational pattern may be due to a skill, such as imitation, with little bearing upon actual intonation competence in L2" (p.104). In fact, in a reanalysis of an earlier study by Purcell and Suter (1980), skill at mimicry was a significant factor in accounting for variability in the pronunciation scores of 61 non-native speakers of English. The four best predictors in order were; first language (Indo-European or not); mimicry ability, years of residency in America; and strength of concern about pronunciation.

The problem of L1 interference in prosody is not restricted to having a foreign accent or being taken for a non-native speaker. Real communication problems may result. Crystal's (1969) warning highlights the dangers of faulty L2 prosody in terms of conveying attitudinal messages. "Phonetic residue of imperfectly learned prosodic features [is] the final barrier to the mastery of a foreign language, by maintaining a stubborn accent on the one hand, and *by obscuring the full range of attitudinal contrasts, on the other"* (p.2 emphasis added).

A few studies have explored the possible emotional or personal impact that incorrect, non-native intonation has on native listeners of a language. For example, Phillipson (1978) found that the typical intonation patterns of Danish learners of English elicited negative personality judgements from native English speakers. When Holden and Hogan (1993) put Russian intonation patterns on English utterances and English intonation patterns on Russian utterances and had native monolingual speakers rate them emotionally, the researchers found "a significant change in affect when intonation was modified from native for foreign (p. 87). In fact, Russian intonation patterns were consistently and significantly rated as negative by native English speakers. In a similar experiment, Gibson (1989) had native Russian speakers, bilingual in English, rate Russian utterances spoken with either (correct) Russian or (incorrect) English intonation contours. These native-Russian listeners also found the Russian intonation on utterances like yes-no questions to be significantly more angry-sounding than the English intonational counterpart. Conversely, subjects considered English intonation on yes-no questions significantly more indecisive and surprised-sounding than with the correct Russian intonation. These subjects confirmed the Holden and Hogan results that Russian intonation elicits negative emotional judgements. The interesting aspect of these judgements is that they were not made by monolingual Russian speakers, but by Russian speakers who have lived in Canada for at least five years, and an average of 12. In fact, it would appear that these native Russian speakers were acting as native English speakers tend to, rendering negative emotional judgements of Russian intonation. A possible explanation for this phenomenon is that there has been some amount of transfer of the L2 intonation structures onto the L1 or Russian system during the years that these speakers have been functioning in a mostly English-speaking environment.

Thus, empirical research to date has provided some evidence for misunderstandings in emotional messages that incorrect L2 intonation can cause for listeners of the second language. This is not to say, however, that another prosodic system is totally impossible to learn. Experimental subjects seem to have better luck when they are simply required to perceive, and not produce, a new system. For example, Broselow, Hurtig and Ringen (1987) wanted to see if speakers of an intonational language, namely English, could learn to perceive the tonal system of Mandarin. After learning the four Mandarin tones (high level, rising, falling-rising, falling), subjects were quite successful overall in perceiving them in initial, medial and final position in groups of syllables. The English speakers did fail to hear them when there was an overlap between English and Mandarin. This happened in the case of the fourth or falling tone. In single syllables this was the easiest tone to pick out for subjects but this ability disappeared when the tone appeared in non-final positions. In non-final positions subjects tended to ignore it perceptually, whereas in final position, where a fall in pitch usually occurs in English declaratives, it was easier to perceive. Here we appear to have another case of L1 transfer such that one aspect of the L1 system is overshadowing and controlling perception of the L2 counterpart. Shen's (1990) Mandarin-speaking subjects also had good success in learning to perceive the intonational system of French. These mono-lingual Chinese listeners were easily able to hear the intonational difference between French questions and declaratives.

Clennell (1996) makes the interesting observation that the typical top-down processing listeners use when interpreting the discourse of other native speakers is directly affected by the speaker's use of prosody. The interpretation process necessarily becomes bottom-up when listening to a non-native speaker because the NNS speech is less predictable in terms of prosody. The native speaker must instead rely on syntactic decoding without being able to rely on "prosodic features to speed up the identification of the propositional content"(p. 21). If the stress markings do not properly differentiate new from given information in a narrative, the hierarchical structure is lost, forcing the listener to pay attention to every word. This is the point at which a vicious circle becomes apparent, since if the prosodic features are faulty, the bottom-up approach may not work very well in decoding the utterances either.

Esling and Wong (1983) single out voice setting preferences across languages for suggestions on how second-language learners can use this information to improve their pronunciation. For example, a number of differences in lip, jaw, tongue and voice configurations in Russian contrast with the English settings. English voice quality settings for neutral speech are spread lips, open jaw, palatalized tongue, retroflexed articulation, nasal voice, lowered larynx, and creaky voice. Russian in contrast has spread lips, closed jaw, palatalized tongue, tightened pharynx. These educators point out that students learning new phonemes of English may obscure them with the L1 'posture', in essence a type of voice quality transfer. A further complication that is discussed is that various settings in English, (and therefore presumably in other languages), have different social or regional implications. Thus an incorrect voice quality setting could affect not only the clear expression of segments, but of suprasegmentals such as stress and intonation.

4.5 *English versus Russian Grammatical Intonation: similarities and differences*

The intonational differences between Russian and English that have been documented tend to be described from a grammatical vantage point. There are clear differences in the overall contours used for Russian and English statements and questions. The natural interaction of grammatical factors with those of attitudinal meaning produce differences in attitudinal meaning which cause problems for English adults learning Russian and Russian adults learning English. Thus pedagogical descriptions of the two different intonational systems combine and intertwine information on grammatical and emotional factors.

4.5.1 Russian Syntactic Intonation

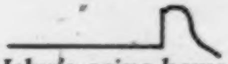
Russian intonation tends to be described holistically and grammatically by Russian linguists. For example, Bryzgunova (1963) laid out a description of the Russian intonational system in syntactic terms that remains the standard, classic description over thirty years later. She described seven melodies or contours (IK) which capture all grammatically meaningful differences in spoken Russian. The contours are described in terms of differences in pitch level, range and direction. Of the seven, the first three correspond to statements, wh-questions and yes-no questions respectively.

4.5.1.1.1 Statements

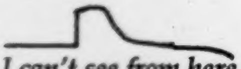
IK-1 is typically used for statements and consists of a mid-level pitch which falls on the nucleus to a low pitch. This low pitch continues for the rest of the utterance.

IK-1	Èto pjatyj avtobus.	Zdes' ostanovka.
	'This is fifth bus.'	'Here is bus stop'
	This is bus #5.	Here is the bus stop.

In the textbook, Russian for Everybody, edited by Kostomarov, (1986), an emotionally neutral Russian statement is described as having a more or less sharp fall in pitch on the accented syllable of the most important word in the sentence, (that which conveys new information), such that this fall will occur within one syllable. All preceding syllables will be at the speaker's mid-level in pitch range and any following syllables will be at a low pitch (p. 17). English statement intonation also falls to a low pitch, usually at the end of the sentence, but only after a rise above normal pitch level. This contour is illustrated in the following examples (p. 17).



John's going home.

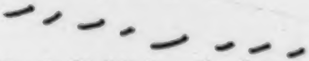


I can't see from here.

Furthermore, if the sentence stress occurs on the last syllable, then the rise and fall in pitch occurs within that syllable. The textbook warns that to a Russian's ears, this rise in pitch before the drop makes the statement sound non-neutral, as having "some special emotional connotation"(p. 17).

Bratus (1972) also admonishes English speakers learning Russian not to use this 'Fall-Rise contour' when uttering Russian statements. A typical English statement's slight rise before a low fall at the end of the sentence contrasts significantly to a Russian non-emotional or neutral statement in which the pitch simply continues at mid-level until the end of the sentence where it falls. To English ears, the final fall may sound abrupt without the mitigating effect of a preceding rise, thereby conveying emphasis or emotion where there is none intended.

Longer statements illustrate variations in pitch levels and pitch changes on each syllable in Russian and English. Boyanus (1955) describes a Russian statement as a descending scale of slightly rising pitches (p. 87), as in;



Vanja ljubit igrat' v karty.

The pitch on English syllables, on the other hand, is much more level, and simply continues descending to the end of the sentence. For example,

—   —   _   —   —
John likes to play cards.

Yokoyama's (1986) intonational system for Russian consists of two types of intonation contour, Type I and Type II. Her Type I resembles Bryzgunova's IK-1 by having a "lowering of tune on the final stressed vowel of a sentence" (p. 179). This intonation pattern is used with the neutral or non-expressive word order of discourse initial existential statements, such as $\overset{\text{LH}}{\textit{Segodnja}}$ $\overset{\text{LH}}{\textit{svetit}}$ $\overset{\text{HL}}{\textit{solnyshko}}$ 'Today the sun is shining' and predicational statements, such as $\overset{\text{LH}}{\textit{Zhenshchina}}$ $\overset{\text{HL}}{\textit{obradovalas'}}$ 'The woman was glad'. The phonemic core of a Type I pattern for Russian is a potentially iterative rising contour tone (LH), which concludes with a falling contour tune, HL. The phonetic realization of this underlying phonemic tune may have one or more intermediate LH tones following a downstep pattern.

4.5.1.1.2 Wh-word questions

The intonation pattern of wh-word questions resembles that of statements in that both are prounced with an overall falling intonation pattern. According to Bryzgunova, IK-2 is typically used for wh- or question-word questions and consists of a mid-level or slightly rising tone which falls slightly yet emphatically on the nucleus of the sentence and continues to fall to a low pitch or tone until the end of the sentence.

IK-2 K̏to tām stōīt?
'who there stands'
Who is standing there?

K̅to do̿mà?
'who is at home'
Who's at home?

Although both English and Russian wh-questions are pronounced with a falling contour, a different amount of stress is put on the wh-word in each case. In Russian, the wh-word is pronounced with "increased energy and tension and may be somewhat higher in tone" (Kostomarov: 26). Furthermore, those syllables following the main intonational stress of the sentence "must remain at a low level and not be allowed to rise above the speaker's normal mid-tone" (Kostomarov: p. 25). Yokoyama's describes her Type II intonation contour for wh-questions as having sentential stress marking the last intonational centre of the utterance after which no rising stresses occur. Yokoyama discusses discourse initial wh-questions which have the intonational centre and therefore 'increased energy and tension'on the wh-word, as "one of the most typical interrogatory intonational constructions of Russian" according to Bryzgunova (p. 265). For example, 'M̅y k̿ak sējcās pōjdēm-tō?' (p. 264) locates the intonational centre on the 'kak'as a typical non-emotional discourse-initial question. Bryzgunova and Kostomarov seem to disagree on the possibility of emotional neutrality for these types of wh-questions. Kostomarov says that in wh-questions the "emphasized word will normally be at the end of the sentence except in contexts where intonation is used to mark the new element in the question". Thus, the wh-word is normally *not* the intonational centre except in short wh-questions with a pronoun or adverb after the wh-word, such as "K̿to èto?". Questions such as "K̅to pōȅt?" will therefore normally contain the "increased energy and tension" on the last syllable of 'poet' and not on 'Kto'. Otherwise, he says, the result will be a "very preemptory question or one with special emotional overtones"(p. 25).

In the wh-question contour, the placement of sentence stress interacts with the pitch changes in the production of attitude or emotion. Yokoyama discusses the fact that these different methods for emphasizing or stressing different items of information in utterances is a source of many inter-cultural differences and most noticeable in wh-questions. In the English equivalent there is much less freedom to put stress on wh-words. She theorizes that English speakers hearing typical Russian wh-word question intonation, with stress and emphasis on the wh-word are receiving the mistaken impression that the rest of the deaccented or non-emphasized information in the rest of the sentence has somehow already been negotiated as a 'shared concern' of the speaker and hearer, when it is in fact not. Thus, the statement is pragmatically a face-threatening, impositional act. To the English listener, the Russian utterance and therefore speaker is presuming a social closeness that is not yet warranted. The wh-question therefore sounds impolite in an emotionally-neutral setting. Yokoyama sums up the main difference in this contour in Russian and English by noting that, "an impositional interlocutor relationship has a different markedness status in different social and cultural areas, such that what is acceptable in one linguistic culture is presumptuous or even rude in another" (p. 265).

4.5.1.1.3 *Yes-No questions*

IK-3 is used for Yes-No questions (Bryzgunova, 1963). This contour starts at a mid-level which continues until the nucleus, at which point it rises very high and then drops down to a mid or low tone on the next syllable.

IK-3	Èto pjatyj avtobus? 'this is fifth bus?' 'Is this the #5 bus?'	Zdes' ostanovka? 'here is the bus stop?' 'Is the bus stop here?'

IK-3 has been the focus of much discussion by linguists and Russian language teachers. Although in both Russian and English there is a pitch rise in yes-no questions, the place and extent of the rise differ considerably, causing learners of both Russian and English many problems.

Yes-No questions in Yokoyama's framework also have a Type II intonation pattern, corresponding to Bryzgunova's IK-3. The word which carries the request for information has a rising LH sentential stress, while the rest of the sentence has a L phrase accent. Kostomarov describes this pattern as a *very abrupt* rise in pitch on the accented syllable of the item being questioned and a continued rise *within the syllable* (p. 31). The vowel in this syllable is also lengthened. Any syllable following the accented syllable must be pronounced at a low pitch level and must not rise again, no matter how long the sentence is. For example, "Mama slushaet radio?" (p. 109). In English yes-no questions, in contrast, the "voice usually rises at the last emphasized word and stays at a high level throughout the rest of the sentence. e.g.,

“ Is Mama listening to the | radio?” Kostomarov warns American students of Russian to make the rise in pitch sharp and high enough, even though this may feel like highly emotional or speech. "As a result even non-emotional Russian speech may appear to be emotionally-charged or gushy to an American" (p. 31-32).

Lake (1982) discusses the difficulties of Russian yes-no questions for native English speakers as a combination of both differences in pitch rise and stress on the nucleus. In his view it is not just the difference in overall contour that makes the IK-3 contour "sharply different" from English. Part of this difference is the Russian contour's sharp rise on the nuclear syllable which returns immediately to a mid or low level on post-nuclear syllables. In English, in contrast, while there is also a rise in yes-no questions, the rise begins more gradually on the nuclear syllable and continues at a high level over the rest of the post-nuclear part of the sentence. Lake feels that having a different syllable as the nucleus in Russian, usually the verb, is the crux of the difficulties this contour gives learners of Russian. A neutral, non-emphasized, or in Lake's terms a general, context-free yes-no question in Russian will be marked on the verb nucleus with stress and the change in pitch level. In the same type of general, non-emphasized yes-no question in English, the nucleus is the last stressable word.

To make matters more complicated, Lake continues, this neutral English question contour does exist in Russian, but functions only as a non-neutral question in which one element in the rheme is being questioned, as opposed to everything else, the theme, which is not. In other words, 'Vaš syn edet segodnja v **Kiev?**', with the stress (and rise-fall) on Kiev, is questioning not the entire rheme "going to Kiev", but simply whether it is Kiev or not which is the destination. In English, this same intonation pattern questions the entire rheme, i.e., "whether he is going to Kiev or not".

On the other hand, the neutral, non-emphatic Russian pattern that questions the entire predicate and would stress 'edet', in 'Vaš syn **edet** segodnja v Kiev?', translates into an English question that demands an either/or opposition. This would be like asking in English, 'Is your son **driving** to Kiev, or is he **flying?**' If a Russian speaker uses Russian IK-3 with the emphasis on the wrong syllable on an English yes-no question, the question will sound odd or wrong to English ears. Furthermore, a Russian speaker may perceive a non-emphatic, English yes-no question as being emphatic, and therefore emotionally loaded, thereby interpreting it incorrectly both in terms of semantic information, and emotional information.

In his 'Six Rules of Russian Intonation' for English-speaking students, Bratus (1972) highlights stress peaks as important in Russian intonation contours because this is the place where pitch changes. In the *Steeper Rise Rule*, Bratus states that pitch rises are steeper in Russian than in English. This rule says that a rise in Russian is made exclusively on stressed syllables, while in English it may be spread out over a number of unstressed ones. This steeper rise is applicable most obviously to IK-3 yes-no question intonation. Again, this steeper rise may contribute to making the contour sound non-neutral, emphatic and emotionally-coloured when used with English listeners. For their part, English speakers learning Russian might naturally resist such steep or abrupt-sounding pitch rises when speaking Russian, confusing Russian listeners as to what exactly is being questioned.

The easiest way to avoid major attitudinal pitfalls for English learners of Russian seems to be to follow the rules for grammatical intonation contours. Put the stress and pitch rise on the right word in wh-questions; resist having too low a pitch rise in yes-no questions; make sure you don't rise in pitch before falling at the end of a statement. Russian learners of English must presumably perform these rules in reverse. Stress and put a rise in pitch on the last syllable of a neutral yes-no question, otherwise you are being emphatic on the wrong word; don't fall too abruptly in pitch at the end of a statement or else you'll *sound* too abrupt; don't put increased stress on the wh-word of a neutral question; it will sound rude to English listeners. The grammar, pragmatics and prosody of an utterance are working together to produce a distinction between emotional and non-emotional utterances. However, as Kostomarov observes, "it is easy to forget about the *subtle* differences which exist" (p. 31) in intonation contours.

It is these pedagogical observations about the emotionally negative repercussions of incorrect L2 prosody which will provide part of the foundation for a systematic study of their implications from both a grammatical and attitudinal point of view for both Russian and English speakers.

4.5.2 Summary of Research

The empirical research done to date allows us to make several conclusions about the characteristics of prosody and intonational factors both within and across languages. These include:

a. That taking away or rendering inoperable intonation/prosodic features makes it almost impossible to decode attitudes and emotions, outlining the importance of intonational features for the expression of emotion.

b. That intonation cues alone can serve to distinguish one language from another, as a marker of a language's identity, thus providing evidence for a language-unique role of intonation and prosody.

c. That learners have more difficulty in producing correct L2 intonation than perceiving it. The fact that there is transfer from the L1 at the level of production provides evidence for the language-unique function of intonation and prosody.

d. That some aspects of prosody, such broad changes in pitch, may play a language-universal role in the expression of attitude, but that the interaction of prosody with vocal and segmental factors makes for a language-unique, socially-prescribed combination of features.

e. That differences in both grammatical and emotional intonational contours between Russian and English suggest that Russian learners of English will experience L1 transfer in production of English attitudes, if not perception.

Having tested the strength of the 'sound' of an attitude on native listener, and the cross-linguistic similarities and differences of the 'meaning' of attitudes in Russian and English, the next stage is to put these two factors together in an experimental situation, and test their cumulative effect on native speakers of both English and Russian. The experimental question is: What effect will the interaction of attitudinal meaning and linguistic expression have on the perception and production abilities of both native speakers and listeners of Russian and English? The interaction was investigated in two different experiments. In the first experiment, the ability of native speakers and listeners of Russian and English to both produce and interpret each other's linguistic versions of the target attitudes is tested. The second experiment targets the abilities of EFL learners to correctly perceive the target attitudes.

4.6 *Experiment 4 Perception and Production of English Attitudes by Native English Speakers and Russian Learners of English*

4.6.1 Introduction

This experiment was designed to answer the question of how Russian speakers of English compare to English speakers in their ability to correctly interpret and express English attitudes based primarily on the prosodic feature of intonation contour. This question was broken down into four specific experimental questions:

Firstly, how do Russian learners of English compare to native speakers of English in their perception and production of English attitudes? That is, how good are Russian speakers and listeners at interpreting and expressing English? This question was sub-divided into two separate abilities, the ability of Russian versus English listeners to perceive English attitudes, and the second, the ability of the Russian versus English speakers to produce English attitudes. The goal is two-fold: to discover the kinds of mistakes that Russian speakers of English make in perceiving and producing English attitudes, and to determine to what extent these mistakes can be attributed to the factor of the English intonation patterns that typically accompany and distinguish among various English attitudes.

The experiment targets six attitudes (*Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical*) and tests perception and production by both Russian learners of English and native English speakers. This experimental question asks which of these six will be best and worst perceived and produced by these two language groups. One possibility is that these attitudinal intonation patterns are universal in their shape and meaning across Russian and English. If this were true these non-native English speakers would presumably have little difficulty expressing and perceiving these attitudes for both a native English or a fellow Russian listener. However, it is more likely, given the differences in syntactic and expressional intonation between Russian and English already discussed, is that Russian speakers and listeners will experience difficulties in correctly producing and perceiving these attitudes. This would provide evidence that the intonation patterns accompanying English attitudes are more language dependent in nature, and not easily able to cross the language boundary between Russian and English. Yet another possibility is a combination of these two scenarios, such that certain attitudes pose difficulties, while others are relatively easy to express and interpret. This would in turn indicate that the six target attitudes vary in this regard such that certain of the six attitudes are more language particular in nature, while others are more language universal in nature.

Intonation also plays a large role in signalling the syntactic structure of an utterance in both Russian and English, although in different ways. Will this difference in syntactic intonational structure make a difference in how well English attitudinal messages are interpreted and conveyed by the Russian learners of English? One might expect, for instance, that English statements would be most easily produced and perceived by Russian subjects since the statement intonation pattern is similar in the two languages. On the other hand, yes-no questions might present more difficulty since the pitch rise in Russian and English questions is in a different part of the utterance. Wh-questions are also dissimilar in the two languages with normal sentential stress and pitch peaks being at opposite ends of the sentence in Russian and English. Therefore, wh-questions could receive the lowest accuracy scores of the syntactic types. Below are some examples of the intonation contours that typically accompany emotionally neutral statements, wh-questions and yes-no questions in Russian and English. The Russian examples are translation equivalents of the English examples.

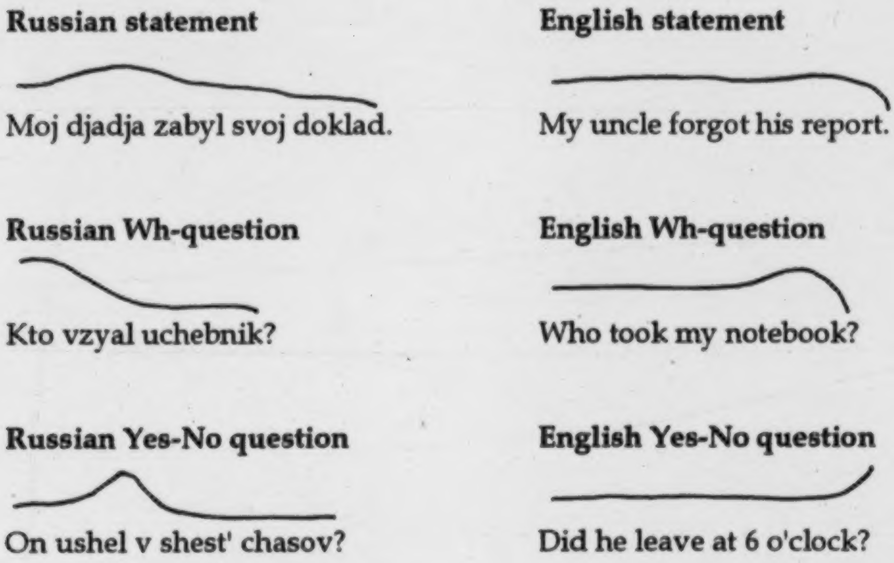

Russian statement
Moj djadja zabyl svoj doklad.
English statement
My uncle forgot his report.
Russian Wh-question
Kto vzyal uchebnik?
English Wh-question
Who took my notebook?
Russian Yes-No question
On ushel v shest' chasov?
English Yes-No question
Did he leave at 6 o'clock?

Figure 4-1 Russian versus English intonation contours (adapted from Gibson 1989)

A final issue to be addressed in this experiment is whether the ability to perceive and produce the English attitudes can be broken down more generally into a distinction between those with a positive connotation or valence, versus those with a negative valence. It may be that a fine discrimination among six specific attitudes is not possible for the non-native speakers to produce or perceive. Will they then be more successful in distinguishing between those attitudes which signal non-threatening, accepting attitudes and behaviours compared to those which signal warnings or threat-like behaviour? One or the other may be more salient in meaning or prosody making a positive or negative mood easier for the non-native speakers to discern and express in English.

4.6.2 Method

4.6.2.1 Participants

Native English-speaking participants and native Russian-speaking participants took part in the experiment as speakers and listeners. There were four groups of participants in total, two groups of speakers, Russian and English, and two groups of listeners, Russian and English. Each group consisted of 10 participants, 5 male and 5 female of varying age ranges.

The participants were organized into listener-speaker pairs as illustrated below in Figure 4.2. The first pair, serving as the control, were native English speakers producing English attitudes as perceived by native English listeners (EngL-EngS). The second pair was native English speakers as perceived by native Russian listeners (RussL-EngS). The third pair was Russian speakers as perceived by native English listeners (EngL-RussS). The fourth pair was Russian speakers as perceived by native Russian listeners (RussL-RussS).

		Speaker	
		English	*Russian*
Listener	*English*	**Control**	**Production**
	Russian	**Perception**	**Perception**

Figure 4-2 Methodology- Speaker by Listener

4.6.2.2 Stimuli

A perception and a production experiment were performed, both of which used the same stimuli.

Six semantically neutral sentences of English, each in Statement, Wh-question and Yes-no question form, were first designed. As mentioned in the previous chapter, lexical neutrality was maintained so that the subjects could focus on *how* the utterance was being expressed, with the lexical content as secondary in importance. The lexical content of the utterances was constructed in the following manner. After creating six sentences that seemed to incorporate semantically and emotionally neutral lexical items, twenty-three first-year linguistic students judged the neutrality of the lexical content on a forced choice questionnaire. They were asked to indicate which of the six target attitudes each sentence most evoked for them. The target utterances were then altered according to these responses.

The story contexts of 3 to 4 sentences containing the target utterances were designed to prime a particular attitude, i.e., *Concerned, Confident, Enthusiastic, Impatient, Polite* and *Skeptical*. The goal of this 'natural' story context was to elicit target utterances that would be as natural-sounding as possible. Each target utterance was located at the end of the story, as an utterance spoken by the main character in the context. These contexts were vetted by another group of 25 native English-speaking linguistic students in a pencil-paper forced-choice task. The respondents were asked which attitude was invoked for them by the story. The majority of respondents agreed that each context evoked the desired target attitude.

Finally, the target utterance appeared in one of three syntactic forms; statement, wh-question, yes-no question. An example of the Polite context with the target utterance in statement form follows in Figure 4.3. The complete list of test utterances can be seen in Appendix A.

> *Polite:*
>
> Linda meets an acquaintance in the hall at a hotel. They discover that they know some of the same people. They discuss someone they both know, a woman named Maya. Linda says to the acquaintance politely,
>
> *"She has three cats now."*

Figure 4-3 Example of story context plus target utterance

Since each of the six target utterances was read in only one of the possible syntactic forms by each participants, several sets of six stimuli cards were used in the experimental procedure.

4.6.2.3 *Procedure*

The first set of utterances were produced by 10 native speakers of English (5 male, 5 female; mean age 28), mostly undergraduate students, who knew no Russian. They read the six attitude contexts into a Sony ECM 5000 portable tape recorder with a Sony electret condenser microphone approximately 8-inches away from their mouths. Each story context was contained on a 5" X 7" card labelled with one attitude. Each participant was told to read over each context to him or herself and when ready, to read it in as natural a manner as possible into the microphone, such as when telling the story to a friend. Participants first practised with a context designed to elicit a target utterance of Surprise.

Sixty stimuli were then prepared from these 10 participants by separating the target utterance from each context and digitizing the former onto computer using the SoundEdit 16 program. The 60 utterances were then randomized via computer and rerecorded onto a separate audio tape to serve as native English speaker (EngS) stimuli.

The next stage of the experiment involved eliciting stimuli as well as perception data from native Russian speakers of English as a second language, who were high intermediate to fluent in English speaking level. Their proficiency level in spoken English was determined by means of an oral narrative test. This task involved describing a story depicted in line drawings of a "Day in the Life of John" using the past tense. The narratives were rated by the experimenter in terms of fluency, correct use of past tense, and complexity of construction type, each on a scale from 2-14. Out of a possible score of 42, this group scored an average of 35 points. These 10 Russian speakers (5 male, 5 female; mean age=31; mean number of years in Canada=4), mostly graduate students, read the same contexts in English into a tape recorder in exactly the same fashion. These 60 Russian speaker stimuli were digitized and randomized exactly as the native English speaker stimuli were, resulting in a Russian speaker (RussS) stimulus tape.

These same Russian participants then served as listeners in the perception part of the experiment. The perception task consisted of listening to the 60 English speaker utterances and deciding on a forced-choice questionnaire which one of the six attitudes they thought was being expressed by the speaker, and whether it was positive or negative in mood overall. A distracter task was performed in between the production of stimuli and the perception task. This was done to separate the act of expressing the attitudes from interpreting them. The first distracter was to narrate the "John" picture story into the microphone. A second distracter was the filling out of a language background questionnaire including personal information for statistical purposes, as well as a number of questions regarding attitudes towards learning English and opinions about their own performance in speaking English.

In the next stage of the experiment, a different group of 10 native English speakers (5 male, 5 female, mean age 25) produced another set of 60 utterances (which were not used as stimuli) in order that each experimental group performed the same tasks and in the same order. The distracter task for these English subjects consisted of the same picture story, and a shortened version of the language background questionnaire. These English participants served as listeners in two perception tasks. First they listened to and provided judgements on the

60 English speaker stimuli, and then immediately after, to the 60 Russian speaker stimuli, using the same forced choice task.

The final perception task was performed by a group of 10 native Russian speakers (5 M, 5F, mean age 33), who had lived in Canada for 2 years on average. The English-language ability for this group ranged from intermediate to advanced (with an average score of 32 on the "John" narrative test). They listened to and categorized the 60 target attitudes as spoken by the other group of Russian speakers. They also produced 'dummy' production stimuli and narrated a story from the picture story in the same order as the other three groups of listeners.

4.6.2.4 *Design*

The resulting data were perception judgements and production of English attitudes by four different pairs of speakers and listeners. Thus, the two main levels in the analysis were speaker type and listener type. The other main factors to be analyzed were type of attitude with 6 levels (*Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical*), and nested within were the three levels of syntactic construction (*Statement, Wh-question, Yes-no question*). This resulted in an overall factorial design of 2 X 2 X 3 X 6. However, because of the fact that the two pairs consisting of Russian listeners were actually two different groups of 10 participants, while the two pairs consisting of English listeners were made up of the same group of 10 participants, the factorial analysis was broken down into two separate analyses. This was done to eliminate the possibility of noise in the experiment, that is, variability in scores caused by having a homogenous group of listeners on the one hand, and a heterogenous group of listeners on the other.

4.6.3 Results

Question 1: "How does Russian speakers' production of English attitudes compare to native English speakers' production of English attitudes?'

Figure 4.4 represents the mean accuracy scores of the four listener-speaker pairs. It was expected that the Russian speakers and listeners would be less accurate than English speakers at producing English attitudes. Another expectation was that the production skills of the Russian learners would lag behind their perception skills. The overall results bore these expectations out. The highest accuracy scores came from the EngL-EngS pair at 50% accuracy. English listener perception of attitudes spoken by Russian speakers was accurate 39% of the time. Russian listeners are correctly perceiving attitudes spoken by English speakers 42% of the time. The lowest average accuracy score of 33% comes from the RussL-RussS pair, who have the double disadvantage of both a lower Russian listener accuracy and Russian speaker accuracy.

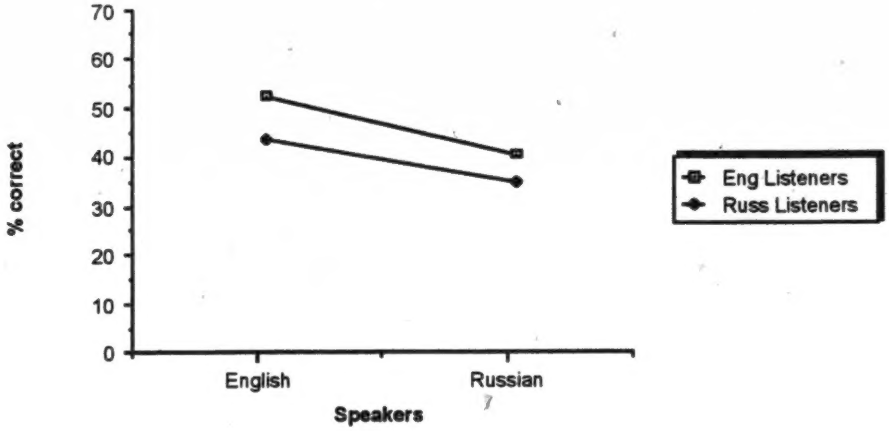


Figure 4-4 Perception Accuracy- 4 Listener-Speaker Pairs

An ANOVA (subjects analysis) performed on the accuracy scores showed a significant main effect of both Listener and Speaker. Listener type (2 levels: Russian vs. English) was significant at $F(1,36) = 7.91$, $p=.0079$. English listeners were correct an average of 46% of the time, and Russian listeners 37% of the time. Speaker type (2 levels; Russian vs. English) was significant at $F(1,36) = 13.84$, $p=.0007$. English speakers were correct 46% of the time, and Russian speakers were correct 36% of the time. Two separate subject analyses were also performed, one on the two English listener pairs and one on the two Russian listener pairs. These results are given at the end of the chapter in footnote 1.

The bar graphs in Figure 4.5 and 4.6 below show the average percentage correct broken down by language group. English listeners classified the attitudes spoken by English speakers significantly better (51%) than when classifying the attitudes as spoken by Russian speakers (39%). A planned F-test revealed a significant difference between these two mean scores ($F(1,18) = 13.24$, $p=.0019$).

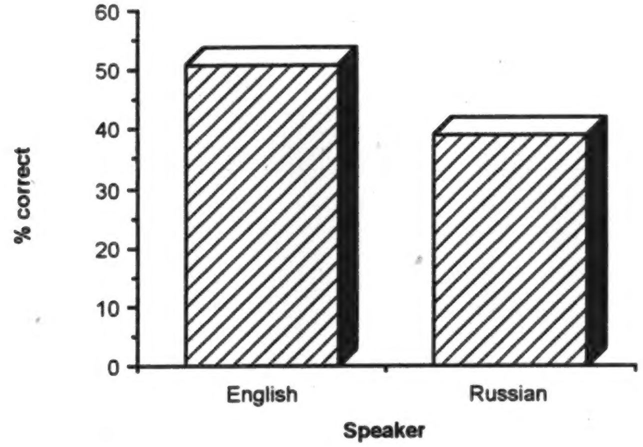


Figure 4-5 Accuracy scores- English listeners

The factorial analysis which investigated the utterances themselves as items, collapsing over subject scores (2 between-Attitude type and syntactic type) and 2 within-Speaker type and Listener type) also showed a significant main effect for both speaker ($F(1,10) = 23.73$, $p=.0007$) and listener ($F(1,10) = 6.33$, $p=.03$).

Question 2: How does Russian listeners perception of English attitudes compare to English listeners perception of English attitudes?

There were two possibilities for Russian listener skills in this experiment. It might turn out that their perception of English attitudes would be higher than for Russian-accented attitudes, or that they are better at perceiving the English attitudes as spoken by Russian speakers. An ability to perceive Russian-accented attitudes better than native English attitudes would provide evidence for the operation of an 'intonational interlanguage' whereby the Russian listeners and speakers make use of transferred intonation patterns from Russian to better understand each other's expressions of attitudes, even in English. This 'interlanguage' would give them an advantage in perceiving Russian-accented attitudes over attitudes with no Russian accent (i.e., attitudes spoken by native English speakers). If, on the other hand, they perceive the native English-accented attitudes better than those spoken by their Russian counterparts, then one could conclude that no transfer of the intonational components from Russian was taking place. In other words, the Russian listeners simply are not as good as English listeners in perceiving English attitudes, although they are developing towards it.

Results supported the second possibility. When Russian listeners listened to English speakers, their perception scores were higher (42%) than when they listened to Russian speakers (33%). The difference was not statistically significant, however, although approaching significance at *F*(1, 18) = 3.93, p=.063. This can be seen in the bar graph in Figure 4.6 below.

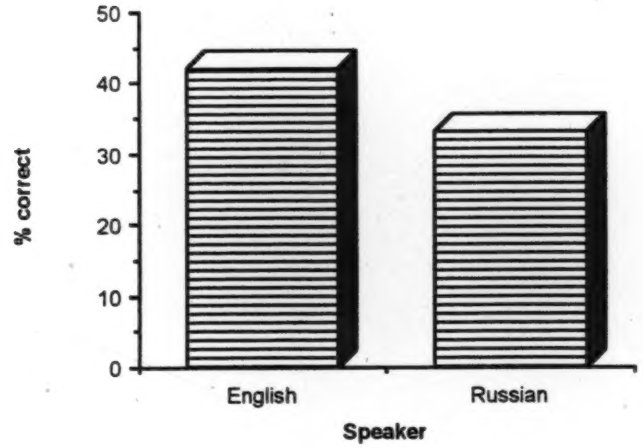


Figure 4-6 Accuracy scores- Russian listeners

Because the Russian listeners are not perceiving Russian speakers more accurately than English listeners are, the lower accuracy cannot be attributed solely to transfer from the L1. This provides some indication that the Russian speakers are actually approximating the English attitudinal intonation better than they are approximating the Russian intonational system as they leave the Russian intonation system behind.

Question 3: 'Which attitudes are perceived best and worst?'

It was expected that some attitudes would be easier to perceive and produce than others and make a significant difference in the accuracy scores. The subjects analysis did in fact show a main effect of atttiude type *F*(5, 180) =6.28, *p*=.0001). Skeptical was the easiest for the four listener-speaker pairs to perceive and produce at an average 50% correct, while Confident was the hardest at 32%. The average accuracy results for all four listener-speaker pairs can be seen in Figure 4.7.

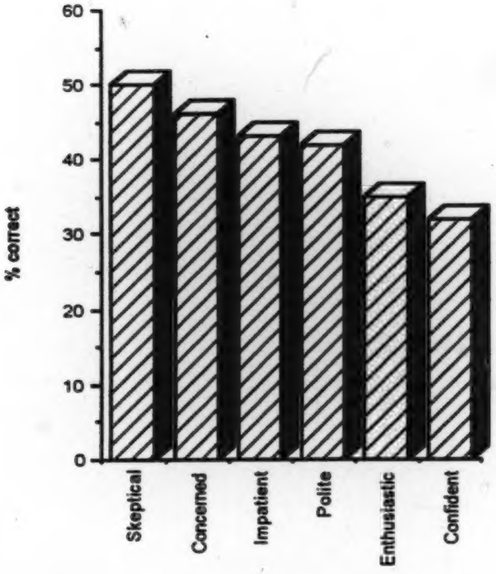


Figure 4-7 Accuracy on Attitude type

An interesting result is that the three negative attitudes, Impatient, Skeptical, and Concerned were best perceived by the four pairs, while the positive attitudes of Enthusiastic, Polite and Confident were the least well perceived and produced overall.

The order of accuracy also varied by the language group of the listeners as can be seen in Table 4.1 below.

Table 4:1 Accuracy Scores for the Six Attitudes

RussL-EngS & RussL-RussS		EngL-EngS & EngL-RussS	
Skeptical	46%	Skeptical	54%
Concerned	43%	Concerned	50%
Polite	39%	Impatient	49%
Impatient	36%	Polite	45%
Confident	31%	Enthusiastic	40%
Enthusiastic	29%	Confident	33%

Question 4: 'Do syntactic intonation patterns influence perception and production of attitudes?'

The answer to this question was a definite 'yes' as shown by significant main effects of syntacitc type and the interactions between attitude type and syntactic type. The overall subject analysis on the four pairs showed a significant main effect of syntactic type, *F*(2, 72) = 5.131, *p*=.0083. It turned out that yes-no questions were best perceived at 44%, statements at 42% and wh-questions at 37%. Yes-no questions and wh-questions are the most markedly different in intonational terms in Russian and English, but this intonational markedness works to the advantage of yes-no questions and to the disadvantage of wh-questions. The significant interaction of syntax with listener type, significant at *F*(2, 72) = 6.832, *p*=.0019 clearly shows the degree of difficulty that the Russian listeners are having difficulty with wh-questions. This is shown in Figure 4.8 below.

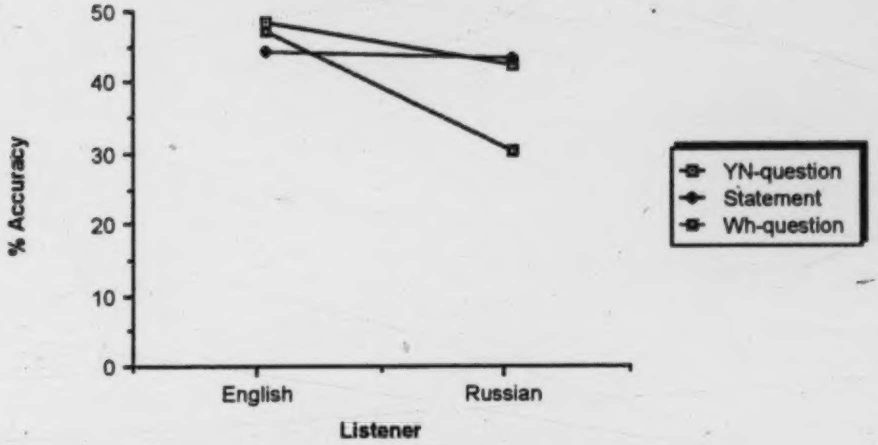


Figure 4-8 Interaction of Syntactic type by Listener type

For the English listener pairs of EngL-EngS and EngL-RussS ($F(2,18) = .945$, $p = .4$) the subject analysis did not show a significant main effect of syntactic type. The range of accuracy was 48% for yes-no questions, 45% for wh-questions and 43% for statements. The items analysis of these two pairs also showed no main effect for syntactic type ($F(2,15) = .067$, $p = .94$).

For the two Russian listener pairs, RussL-RussS and RussL-EngS, the main effect of Syntactic type *was* significant ($F(2,36) = 9.02$, $p < .05$) in the subject analysis. As shown below in Figure 4.9, Russian listeners perceived statements as spoken by either English or Russian speakers the most accuractly at 42%, next best were yes-no questions at 41%, whereas wh-questions were perceived correctly only 29% of the time. The result for wh-questions reflects the quite different intonation contour used to signal English versus Russian wh-questions, and the very similar contour for statements in the two languages. On the other hand, given the differences in placement of the stress and pitch peaks in Russian versus English yes-no questions, this syntactic type was surprisingly well perceived by Russian listeners. Apparently, both Russian speakers and listeners are adapting better to the different location of the pitch rise of English yes-no questions than of wh-questions. Another possibility is that the language differences in wh-question contours are interfering with the perception and production of certain attitudes, much more than the yes-no question intonation contour differences are.

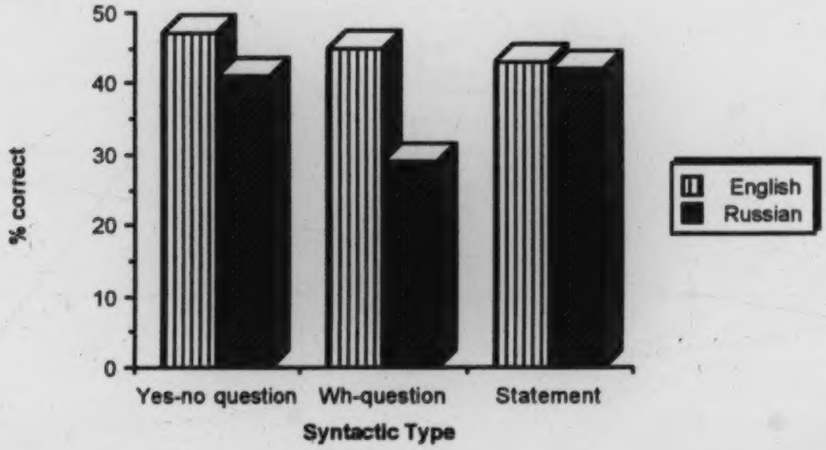


Figure 4-9 Accuracy on Syntactic type-Russian and English listeners

The interaction of attitude and syntactic type did prove to be a significant one in the overall subject analysis of the four pairs at *F*(10, 360) = 28.935, *p*=.0001. Figure 4.10 below shows the interaction.

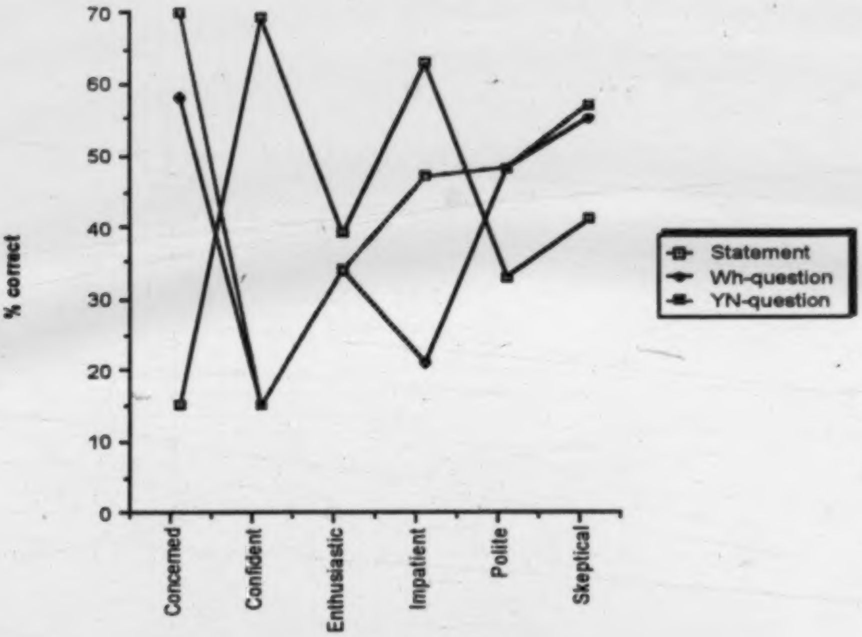


Figure 4-10 Interaction between Attitude and Syntactic type-all four listener-speaker pairs

The perception of wh-questions was most successful when paired with Concerned and Skeptical. They were much less successfully paired with Impatient and Confident. Conversely, statements were most easily perceived when in the attitudinal guise of Confident and Impatient, and least easily perceived as Polite and Concerned. Lastly, yes-no questions were least well-perceived as Confident and best as Skeptical.

Breaking the four pairs down by language of listener highlights the interaction in different ways. The subject analysis comparing the two English listener groups, EngL-EngS vs. EngL-RussS, shows a highly significant interaction between Attitude type and Syntactic type

($F(10,90)= 14.23$, $p <.05$). This result, which is very similar to the overall results, can be seen in Figure 4.11 below. Impatient statements received the highest accuracy score at 77%, while Concerned statements received the lowest score at only 8% accuracy. Concerned statements and Confident questions of both types were least well perceived overall. Yes-no questions were best perceived as Concerned and Skeptical in attitude. These best and worst pairings make sense intuitively. Speakers generally ask questions if they are concerned or skeptical about a situation and require further information or confirmation from their interlocutor. These circumstances of indecision and ignorance would not lend themselves to many statements of fact by a speaker. It is also plausible that a speaker would make a statement about a situation rather than ask a question, while at the same time expressing confidence or demanding action of his or her listener in an impatient tone of voice.

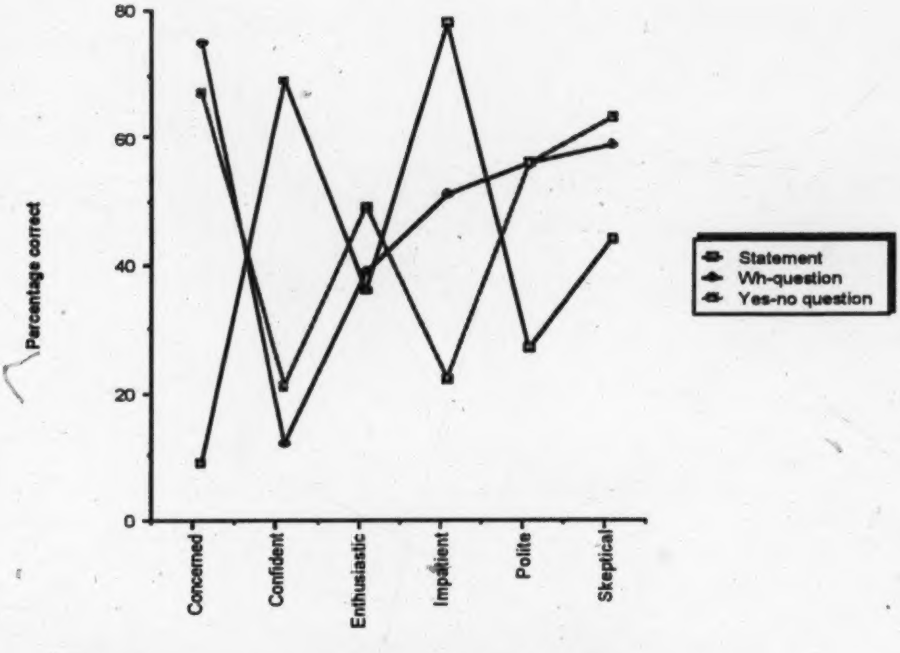


Figure 4-11 Interaction between Attitude and Syntax-English listeners (EngL-EngS & EngL-RussS)

The subjects analysis comparing the two pairs of Russian listeners, RussL-EngS and RussL-RussS, also showed a highly significant interaction between Attitude type and Syntactic type (*F*(10,180)= 12.02, *p* <.05). As illustrated in Figure 4.12 below, this pattern is similar to the previous two figures except in the relatively lower accuracy levels. These two Russian listener pairs found Confident statements the easiest to perceive, at 69% accuracy, and Confident wh-questions almost impossible, at a very low 7% accuracy. The Russian listeners had a much more difficult time with wh-questions than the English listeners did. Even Enthusiastic wh-questions were perceived correctly only 20% of the time.

The final significant interaction for the Russian listener pairs was the three-way interaction between Attitude type, Syntactic type and Speaker type at *F*(10,180)= 2.439, *p* <.05.

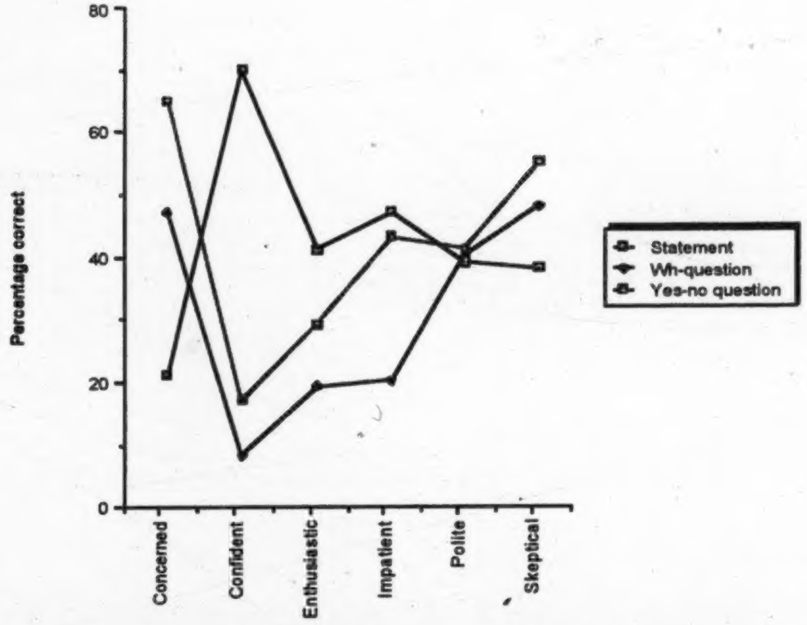


Figure 4-12 Interaction between Attitude and Syntactic Type-Russian listeners (RussL-RussS & RussL-EngS)

In summary, the combination of a particular syntactic structure with any of the six target attitudes appears to create both optimal and non-optimal conditions for perception and production by Russian and English speakers and listeners alike. The patterns of perception accuracy for these attitude and syntactic pairings are similar across the two languages, varying only in degree of success. The most significant cross-linguistic differences in accuracy appear in conjunction with wh-questions, which have the fewest successful attitudinal pairings relative to the English listeners.

Question 5: 'How well are positive and negative attitudes distinguished?' The answer to this question comes from two sources. The first source is a respondents' accuracy on the forced choice task which rated the expressed attitude as either positive, negative or neutral in mood. An items ANOVA analysis collapsing over all four speaker-listener pairs, with mood (2 levels; positive, negative) as the between factor, and speaker type and listener type as the repeated measure (within factor) showed no significant main effect of mood. ($F(1, 16)=1.43$, $p=.25$). In other words, the four listener-speaker pairs were not significantly better at perceiving one mood type compared to the other. Nevertheless, a noticeable trend occurred for the attitudes representing a negative mood to be easier to perceive than the attitudes representing a positive mood. The positive attitudes of Confident, Enthusiastic, and Polite were perceived correctly as positive 36% of the time, while the negative attitudes of Concerned, Impatient and Skeptical were perceived correctly 46% of the time. For this analysis, the neutral category was considered as a wrong answer for both the positive and negative attitudes. When both syntactic type and mood type served as the between variables in the items analysis, neither mood nor syntactic type were significant. (Mood type: $F(1, 12)=1.32$, $p=.27$), Syntactic type: $F(2, 12)=.19$, $p=.82$).

The second method of determining whether or not respondents could make a positive versus negative mood distinction was to determine the degree of 'positiveness' and 'negativeness' that respondents perceived for each attitude. In other words, it may be that the four speaker-listener pairs behave differently in their perceptions of *how* negative or positive they perceive each attitude to be. For this analysis, the three positive attitudes were considered as correctly perceived if they were identified as one of the three positive attitudes, and as incorrectly perceived if they were identified as one of the three negative attitudes. For example, if the correct answer was Polite, then a response was considered correct if it was either one of Polite, or one of the other two Positive attitudes, Confident or Enthusiastic. If a correct answer were Skeptical, then any answer of Skeptical, or the other two negative attitudes, Impatient or Concerned was considered correct. If any positive answer was considered correct, that is a hit, then any mistaken answers of a negative attitude were considered incorrect, or as misses. This scoring held true in the other direction as well. If a negative answer was considered correct, then any positive answers for that utterance were considered incorrect, or misses. Table 4.2 below shows the degree to which each of the six attitudes was considered as positive or negative in mood for the two English listener pairs. The total percentage for each attitude of possible hits versus misses is 100 except when answers were left blank by participants and therefore not counted.

Table 4:2 Positiveness & Negativeness- Russian production

Attitude	**EngL -RussS**		**EngL -EngS**	
	+	-	+	-
Polite +	64%	36%	77%	23%
Confident +	64%	36%	69%	30%
Enthusiastic+	55%	44%	59%	41%
Impatient -	23%	*80%*	19%	*81%*
Concerned -	43%	57%	30%	*73%*
Skeptical -	37%	63%	9%	*91%*

The results show that the positive attitudes are being perceived to a relatively similar degree by these listener-speaker pairs. The similarity breaks down in the perception of the negative attitudes, as a comparison of Figures 4.13 and 4.14 shows.

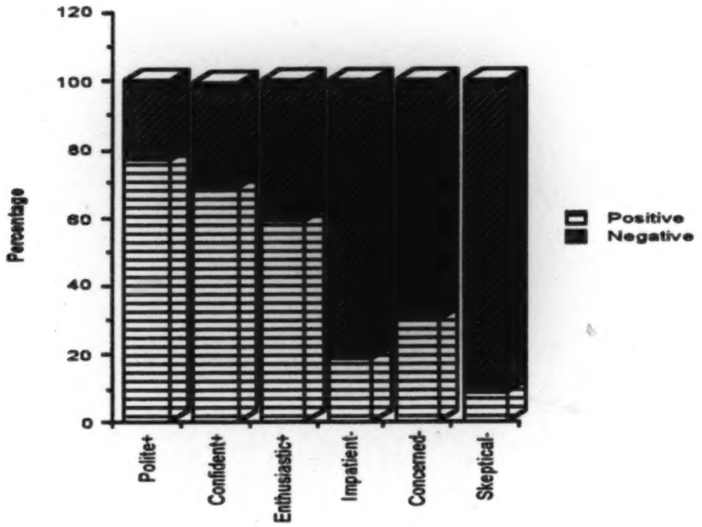


Figure 4-13 Accuracy as Positive vs Negative-EngL-EngS

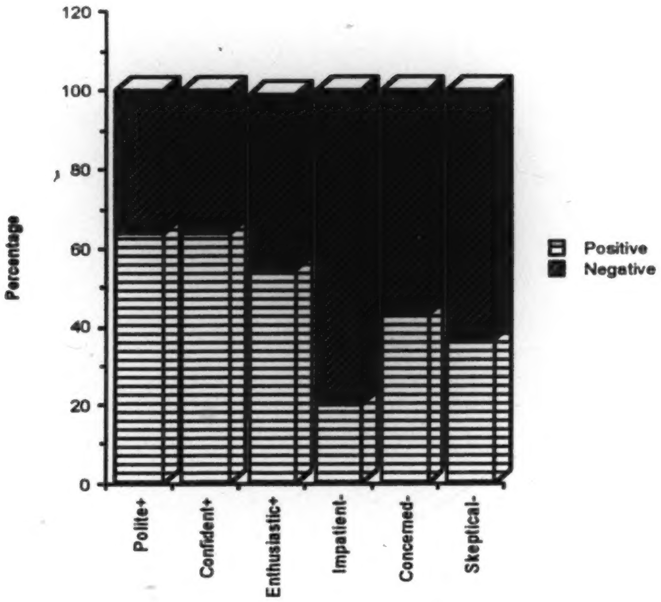


Figure 4-14 Accuracy as Positive vs Negative- EngL-RussS

Both listener-speaker pairs perceive the positive attitudes as positive more often than as negative. However, the negative attitudes of Concerned and Skeptical are being perceived correctly much more often as negative in mood when produced by English speakers than they are when produced by Russian speakers. These two attitudes are interpreted much more positively when spoken by Russian speakers. Interestingly, this trend is opposite to that found by Holden and Hogan (1993) in which English listeners tend to perceive Russian intonation in overall negative emotional terms. For some reason, the Russian speakers' production of Concerned and Skeptical sounds less negative to English listeners than English-accented Concerned and Skeptical does. It may be that the Russian speakers are simply less able to make an expressive distinction between positive and negative attitudes. This does not explain the relatively negative-sounding Impatient, however.

Russian listener perception of English speakers compared to Russian speakers shows a pattern in Table 4.3 below of perceived positiveness and negativeness that is comparable across the two languages at least for the negative attitudes. In direct opposition to the English listeners, for the Russian listener pairs the pattern of mood perception breaks down in the perception of positive attitudes produced by Russian speakers. A comparison of Figures 4.15 and 4.16, shows that the trend is for Russian listeners to perceive Russian-accented positive attitudes of Enthusiastic, Polite and Confident as negative almost as often as positive. The accompanying acoustic features of these three particular positive attitudes may be making them sound attitudinally ambiguous to the Russian listeners, or making them difficult to produce. This is an indication of a general lack of skill in handling the prosodic requirements of positive English attitudes. As well, the fact that Russian listener have the most difficulty perceiving Russian-accented 'moods' is corroborating evidence that the perception and production skills of the Russian speakers are simply lagging behind that of native English listeners and speakers. There is no intonational interlanguage at work to help these listeners and speakers interpret the mood from a Russian intonational point of view.

Table 4:3 Positiveness & Negativeness- Russian Perception

Attitude	RussL -EngS		RussL -RussS	
	+	-	+	-
Polite +	67%	32%	51%	50%
Confident +	60%	39%	41%	55%
Enthusiastic+	56%	44%	35%	64%
Impatient -	20%	78%	33%	64%
Concerned -	27%	71%	32%	68%
Skeptical -	33%	69%	31%	69%

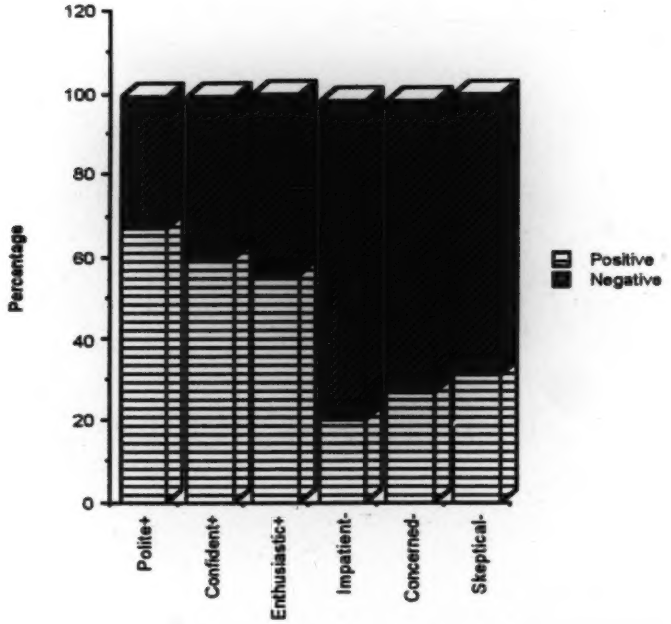


Figure 4-15 Accuracy as Positive vs Negative- RussL-EngS

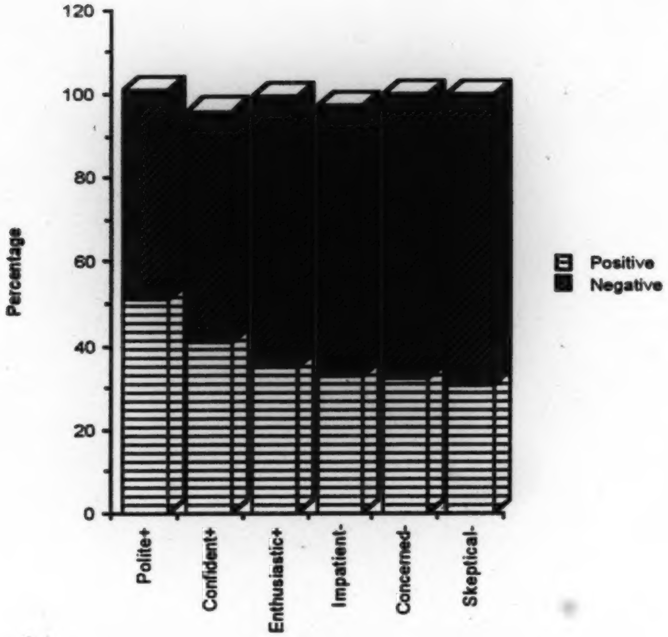


Figure 4-16 Accuracy as Positive vs Negative- RussL-RussS

A comparison of the four bar graphs together shows that the demarcation between positiveness of positive attitudes and the negativeness of negative attitudes deteriorates progressively from the EngL-EngS through to the RussL-RussS pair. There is in fact a significant difference statistically, as illustrated in a two-tailed t-test (unpaired) comparing the percentage of time the three positive attitudes were perceived as positive, and the negative attitudes as positive across the EngL-EngS and RussL-RussS pairs ($t=2.75$, $p< .05$).

4.6.3.1 Confusions

As befitting a pattern of accuracy influenced mostly by developmental patterns and not by L1 interference effects, the patterns of mistakes made by the four pairs were extremely similar. Not only did all four pairs of listener-speaker have similar orders of accuracy in attitudes across the four pairs, both Russian and English speakers and listeners tended to confuse a given attitude with the same one. That is, the Russian listeners and speakers did not present a confusion pattern that was different from that of their English counterparts. The frequencies of responses for each listener-speaker pair can be seen below in Figures 4.14 to 4.17. A chi-square analysis was used to compare each listener-speaker pair's observed and expected pattern of accuracy and errors (df=25). Observed errors were significantly different than expected errors for all four listener-speaker pairs (EngL-EngS: $X^2 = 621.87$, $p < .001$; RussL-EngS $X^2 = 312.44$, $p < .001$; EngL-RussS $X^2 = 367.1$, $p < .001$; RussL-RussS: $X^2 = 180.80$, $p < .001$). The frequency matrices are illustrated below in Tables 4.4 to 4.7.

Table 4:4 EngL-EngS accuracy and confusion matrix

	Perceived					
Presented	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	56	14	4	6	12	11
Confident	5	30	3	23	36	2
Enthusiastic	17	8	46	4	5	20
Impatient	21	2	5	56	12	4
Polite	13	10	16	4	51	6
Skeptical	11	3	1	11	5	69

Table 4:5 EngL-RussS accuracy and confusion matrix

	Perceived					
Presented	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	40	19	1	13	23	4
Confident	8	29	3	26	32	2
Enthusiastic	19	8	34	10	13	15
Impatient	31	7	3	49	13	0
Polite	25	14	6	6	44	5
Skeptical	16	5	20	4	12	43

Table 4:6 RussL-EngS accuracy and confusion matrix

	Perceived					
Presented	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	50	10	1	5	16	16
Confident	18	25	4	19	31	2
Enthusiastic	9	6	41	17	9	18
Impatient	27	12	0	47	8	4
Polite	11	15	11	7	41	14
Skeptical	17	5	7	6	21	46

Table 4:7 RussL-RussS accuracy and confusion matrix

	Perceived					
Presented	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	40	13	4	14	15	14
Confident	18	24	2	24	15	13
Enthusiastic	34	6	19	18	10	12
Impatient	27	15	6	28	12	9
Polite	28	9	2	2	40	20
Skeptical	21	9	11	3	11	45

Confident, Polite, Impatient and Concerned were the attitudes most likely to be misperceived as another attitude. For example, Confident was confused most often as Polite when an English listener or speaker was involved. Only the RussL-RussS pair did not tend to make this mistake. The next most common confusion for Confident was as Impatient. In fact, the RussL-RussS pair perceived Confident incorrectly as Impatient just as often as the correct Confident. All three pairs containing a Russian speaker or listener showed the same tendency to confuse Impatient as Concerned. Table 4.8 shows that the most often confused attitudes were Confident and Impatient and that they tended to be misperceived as Polite and Concerned respectively.

Table 4:8 Pattern of Confusions for all 4 listener-speaker pairs

Pair	**Attitude**	
	Presented	**Perceived**
EngL-EngS	**Confident**	**Polite** **Impatient**
RussL-EngS	**Confident**	**Polite**
	Impatient	**Concerned**
EngL-RussS	**Confident**	**Polite** **Impatient**
	Impatient	**Concerned**
RussL-RussS	**Confident**	**Impatient**
	Impatient	**Concerned**

4.6.4 Discussion

The goal of this experiment was to determine whether or not a Russian speaker could produce and perceive English attitudes as well as English speakers. The answer to this is no. The experimental results provide a clear indication that having to adapt to Russian-accented attitudinal expressions is adversely affecting the communication of English attitudes between English speakers and Russian speakers of English. These misunderstandings are mitigated somewhat if the functional load on speaker and hearer is simplified to expressing and interpreting the general mood as positive or negative. The Russian speakers are able to produce a positive and negative-sounding attitude with comparable accuracy to English speakers. Given this comparability, however, problems arise in the perception of positive or negative mood when Russian listeners must interpret Russian-accented positive English attitudes and when English listeners must interpret Russian-accented negative attitudes.

The caveat attached to the results of this experiment stems from the low accuracy scores. Overall, accuracy ranged from an average of 33% correct for the RussL-RussS pair, to a high of 51% for the EngL-EngS group. For the four listener-speaker pairs together, overall accuracy is only 44%. Thus, even in the control pair, a native English listener is able to interpret a fellow native English speaker's attitude correctly only half of the time. Although these accuracy ranges are not out of line with other emotion studies involving forced-choice tasks (c.f. van Bezooyen, 1984), the necessity of balancing experimental conditions with conversational and contextual plausibility probably rendered this perception task more than normally difficult for the participants.

The fact that all four pairs showed the same relative pattern in their abilities to identify and express the six target attitudes makes it difficult to draw anything but tentative conclusions on the question of how language universal these patterns of 'attitudinal intonation' are across Russian and English. No one particular attitude stood out as one that the Russian subjects consistently mistook for another. And though certain attitudes, namely Concerned, Impatient and Polite all cropped up as the wrong choice when a confusion occurred, all four pairs tended to make the same choices in their errors. As well, certain attitudes, such as Confident, for example, behaved quite ambiguously in this experiment. Its prosodic characteristics were obviously easily mistaken for those of other attitudes such as Impatient, Polite and Concerned. Nevertheless, a clear conclusion can be drawn that Russian speakers of English cannot depend on imperfectly learned English intonation patterns to express and perceive attitudes correctly in English.

As for the syntactic form of the utterance, it has a significant impact on how accurately an attitude is perceived or produced. Here the interference from the Russian syntactic intonation patterns is easier to see. Low wh-question scores indicate that Russian speakers need to be especially aware of the intonational difficulties that this question-type poses. Yokoyama's warnings of the problems that the utterance-final drop in pitch will cause listeners is illustrated very well in these results. As well, the fact that yes-no question and statement scores vary widely in ease of perception along the six attitudes illustrates how the natural associations and disassociations operate as either a help or a hindrance to Russian speakers in conveying and interpreting those attitudes to native English speakers, just as they do between native English speakers and listeners.

These experimental results show that Russian listener perception of attitudinal intonation is an easier task for these Russian participants than production is. Given this result, and the high degree of inter-speaker variability, another investigation of the interaction of attitude and intonation was conducted, focussing on listener perception. These modifications should produce an experiment with less inter-item and inter-participant variability, allowing a clearer measure of the abilities of Russian learners of English to perceive English attitudes.

[1] ***Split analyses (subject)-***

Russian listeners- In a factorial analysis comparing speakers in the two Russian listener groups, no significant difference in accuracy was found for the English versus Russian speakers. That is, a repeated measure ANOVA with Speaker type (between) and Attitude and Syntactic type (within), no significant effect of speaker was found (F (1,18)= 3.93, p = .06). In other words, it made no significant difference to perception accuracy if the Russian listener was listening to an English or Russian speaker.

This analysis also showed a significant effect of Attitude (F(5, 90) = 3.23, p=.01) and syntactic type (F(2, 36) = 9.024, p=.0007). The interaction of Attitude by Syntactic type was also significant at F(10, 180) = 12.02, p=.0001).

English listeners -Because the two listener groups were composed of identical participants, this subject analysis treated speaker type as a within repeated factor instead of a between factor. The main within effects were Speaker (two levels; Russ, Eng) and Syntactic type (3 levels; Statement, Wh-question, Yes-no question) both nested within the factor of Attitude (6 levels; *Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical).* A significant main effect of Speaker type was found ($F(1,9) = 14.08$, $p = .0045$). A main effect of attitude type ($F(5, 45) = 2.6$, $p=.038$) and syntactic type ($F(5, 45) = 2.42$, $p=.05$) was also found. The interaction of these two factors was also significant. ($F(10,90) = 14.234$, $p=.0001$).

5. Experiment 5. Perception of English Attitudes by Native Speakers of English and Russian Learners of English (EFL)

5.1 *Introduction*

Although the previous experiment clearly demonstrated that Russian speakers of English are not very good at perceiving and producing English attitudes, under the same experimental circumstances, neither are the English speakers. Although the difference in abilities between the two language groups were statistically significant, we need an experimental measure that leaves little doubt as to whether or not native English speakers can handle the target English attitudes. The previous experiment may have placed too much burden on the participants in terms of productive and perceptual abilities by requiring reading of unfamiliar material aloud into a microphone, and for the Russian speakers especially, with an unfamiliar type of English specific to the experimental context. The requirement of each participant to role play six different characters having six different attitudes/emotions is not a trivial cognitive load. In terms of experimental variables, the mix of syntactic types with different attitude types, although informative, did produce a great deal of variability in the scores as well. Therefore, although Experiment 5 retained the goal of investigating the six target attitudes, modifications were made to make the task easier for the participants.

Thus, this experiment was also an investigation of the interaction of attitudinal information at the intonational and the conceptual level, across Russian and English. The goal was similar to the experiment in Chapter 4, an investigation of the perception abilities of Russian learners of English to perceive English attitudes, in comparison to native English listeners. As in Experiment 4, information was available to the participant about the potential attitude being expressed, as well as the lexical and prosodic information which accompanied each test utterance. Given the results of the previous perception/production experiment, however, this experiment differed in several key ways methodologically. Firstly, the target subject population was of a different type, namely a group of EFL learners living and studying English in Russia, as opposed to ESL learners/non-native speakers living in Canada. The test population was also more homogenous in nature, having been gathered from one EFL school in St. Petersburg, Russia. This sample population will have been exposed to the same type of formal instruction in English, and be more likely to have similar English speaking abilities providing for a more uniform English proficiency level. Secondly, the stimuli in this experiment was narrowed down in scope from that of the previous, in terms of lexical and syntactic content. Only one type of syntactic construction was used, that of a yes-no question. This test utterance had received higher accuracy scores in the previous experiment relative to the other syntactic constructions even by the two listener pairs who were consistently lower in perception and production accuracy, i.e., RussL-RussS and RussL-EngS. The lexical content was kept constant in the test utterance, duplicating the Concerned yes-no question of "Should we water the plants every day?". A tag question was added onto the end of this utterance, resulting in, "We should water the plants every day, shouldn't we?". The tag was added to increase the availability to the listener of both prosodic and semantic information, thereby allowing for greater ease of perception. Finally, the task was limited to perception judgements, eliminating variability in perception accuracy due to the variation in production abilities of speakers.

With these modifications, the fifth and last experiment in this series of experiments was designed to provide an answer to the following experimental questions.

1) What are the perceptual abilities of the Russian learners in relation to that of a native English-speaking control group?

2) With which attitudes do the Russian learners and English controls have the most difficulty?;

3) Can the Russian learners discern the difference between positively- and negatively-valenced attitudes?

5.2 *Method*

5.2.1 Participants

50 native Russian-speaking adults participated as listeners in the experimental group, all students at an English as a Foreign Language institute in St. Petersburg, Russia. All were enrolled in a full-time three-year program of 24-26 hours of classroom time a week. One two-hour class a week was spent on pronunciation and listening skills. The school offers a three-semester course on intonation, but not all of the participants had taken it. Both textbooks used by the school have integrated components on grammatical and expressive intonation. The textbooks were "Pronunciation Pairs: an introductory course for students of English", by Ann Baker and Sharon Goldstein and "Accurate English: a complete course in pronunciation" by Rebecca M. Dauer.

Participants were asked on the accompanying questionnaire to rate themselves as either Beginner-Intermediate (BI), Intermediate-Advanced (IA), or Advanced-Fluent (AF) in English proficiency. 18 students rated themselves as BI and 28 as IA. Only four students rated themselves at an Advanced-Fluent proficiency level, and since these participants' accuracy scores at 39%, were actually below that of the IA group at 42%, these AFs were subsumed under the IA group in the analysis. The average age of the two EFL learner groups was 19. There were 6 males and 44 females.

The 38 native-English speaking participants in the control group were all undergraduate linguistics students at the University of Alberta. There were 12 males and 26 females with an average age of 26.

5.2.2 Stimuli

The test utterances were identical to those used for experiment 3 in chapter three which tested how similar or dissimilar the six utterances sounded in comparison to each other. The utterance was a rendering of *"We should water the plants every day, shouldn't we?"*, spoken by one female native Canadian English speaker. This utterance was used to express the six target attitudes of *Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical.* These six utterances were put on an audiocassette, each repeated three times in semi-random order so that no attitude occurred twice in a row. Two 'pad' utterances of previously discarded test utterances were placed at the beginning of the tape. These two utterances served as practise utterances for the participants, although their nature was undisclosed to the participants.

A 10-second pause was inserted between each utterance so that participants could circle one of the six attitudes. The total number of utterances on the test tape was therefore 20.

5.2.3 Procedure

For the Russian participants, the experiment was held at the English language school in St. Petersburg and conducted by the instructors there. They were equipped with the stimuli audiocassette and the answer sheets (including consent forms). The experiment was held separately with several individual classes of varying sizes. Before beginning the experiment, the instructor was requested to read the instructions out loud in Russian and English and answer any questions the participants had.

The native English-speaking participants, all speakers of Canadian English, were tested individually in a laboratory setting using a Sony tape recorder and headphones at the University of Alberta.

The task took approximately 10 minutes to complete.

5.2.4 Design

The dependent variable (i.e., repeated measure) was the accuracy score on the forced choice task. The independent variables were the Proficiency level of the participants (3 levels: Beginner/Intermediate (BI), Intermediate/Advanced (IA), Native English speaker (NA); Attitude type (6 levels: *Concerned, Confident, Enthusiastic, Impatient, Polite, Skeptical*); and the Order of the utterance on the tape (3 levels:

first, second, third). As well, the utterances were grouped as either positive or negative in Mood.

5.3 *Results*

Question 1: Does Proficiency level make a difference to the accuracy scores in the perception task?

As expected, the native English listeners obtained significantly higher accuracy scores than the two groups of Russian listeners. The subject ANOVA yielded a highly significant main effect of Proficiency level at $F(2, 85) = 23.752$, $p = .0001$. The native English listeners scored 61% correct, the Intermediate-Advanced group 41%, and the Beginner-Intermediate 38%. This result is represented in figure 5.1 below.

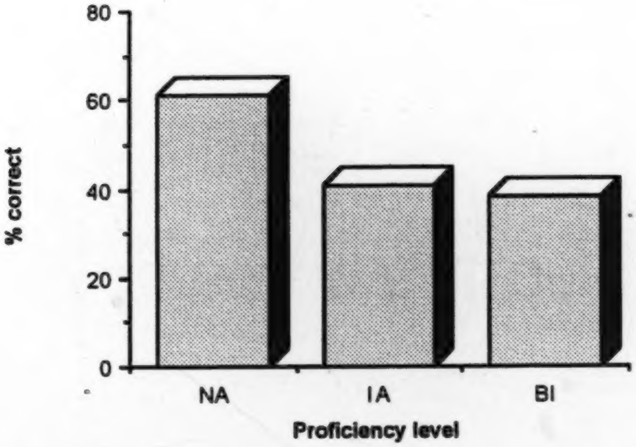


Figure 5-1 Overall Accuracy Scores-3 levels

A planned F-test was conducted to determine if there was a significant difference between the BI and IA level of proficiency. There was no significant difference (F(1,48) =.79, p=.38).

An items analysis was also performed on these results, in order to test the variation in scores attributable to the items themselves. The items-analysis (ANOVA summing over subjects) also showed a significant effect for Proficiency level (3 levels- NA, IA, BI) at $F(2,24)$ =35.64, p=.0001.

Question 2: Which attitudes are perceived best and which worst?

Which attitude was being listened to definitely made a difference to the correct perception of the target attitudes. The main effect of Attitude was highly significant at $F(5,425)$=17.53, p=.0001), with Enthusiastic being the easiest attitude to perceive and Skeptical the most difficult over all three proficiency levels. The percentage correctly perceived by all three proficiency levels is shown in Table 5.1 and Figures 5.2 and 5.3. The range of accuracy was from 40% to 82% for the native English listeners and 14% to 63% for the two groups of EFL learners. The order differs mainly by the relative placement of Polite, which was the attitude perceived best at 63% by the EFL learners, but was only in a tie for third place at 53% by the native English listeners. The two orders of accuracy are shown in Table 5.2 and Figures 5.4 and 5.5. A Spearman rank-order correlation coefficient revealed a moderate correlation between the two orders of .54.

Table 5:1 Overall percentage correct for target attitudes by all levels

Attitude	% Correct
Enthusiastic	61
Impatient	60
Polite	58
Confident	49
Concerned	37
Skeptical	29

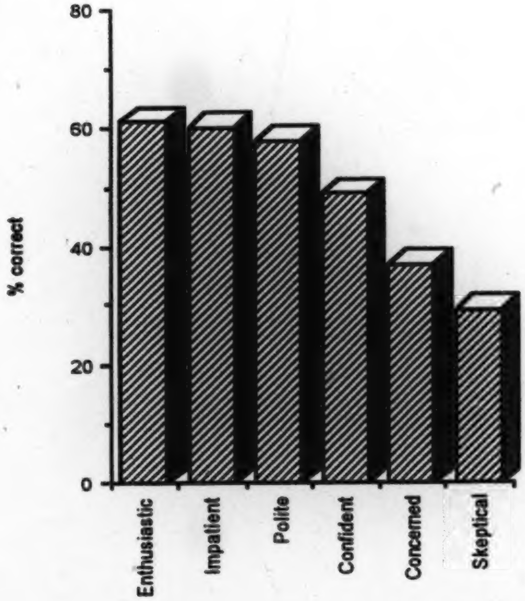


Figure 5-2 Percentage correct on attitudes by all groups

Table 5:2 Percentage correctly perceived by two language groups

Attitude	% Correct EFL learners	% Correct Native English
Polite	63	53
Enthusiastic	49	75
Impatient	44	83
Concerned	34	40
Confident	35	67
Skeptical	14	48
	rho = .54	

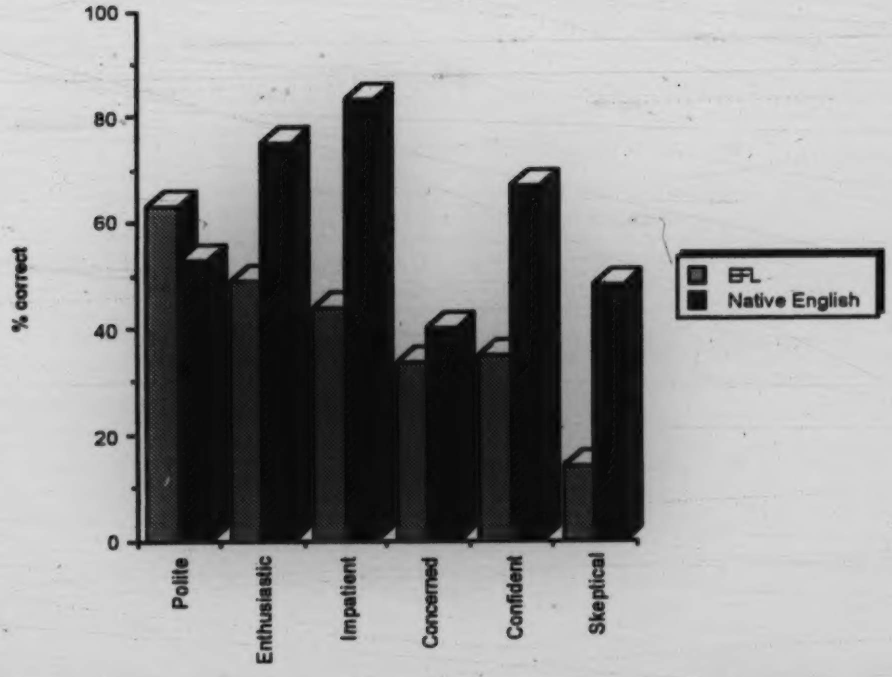


Figure 5-3 Percentage correctly perceived by two language groups

It is interesting that the native English speakers have the most success in identifying the three most Active attitudes, Impatient, Enthusiastic and Confident, according to their placement on the 2-dimensional conceptual scale hypothesized in chapter 2. These were also the three attitudes most active in prosodic terms, all having a range in pitch of over 100 Hz. Thus, for the native English listeners, these three attitudes are both conceptually and prosodically salient. Furthermore, in comparison to the non-native speakers, native speakers of English are worse at perceiving the conceptually and prosodically tamer attitudes such as Polite and Concerned. For the EFL learners, who were, in contrast, so accurate with the attitude Polite, it is possible that this attitude is salient in social terms, perhaps being perceived as an important attitude in potential or future interactions with native speakers of English. It would have been interesting to ask the participants which attitudes they thought would be most important for a successful conversation in English with an English speaker.

The interaction of Attitude type by Proficiency level was also significant at $F(10,425)=4.73$, $p=.0001$. In other words, listener success in perception of a particular attitude depended on which proficiency level the listener belonged to. These results can be seen below in Figure 5.4.

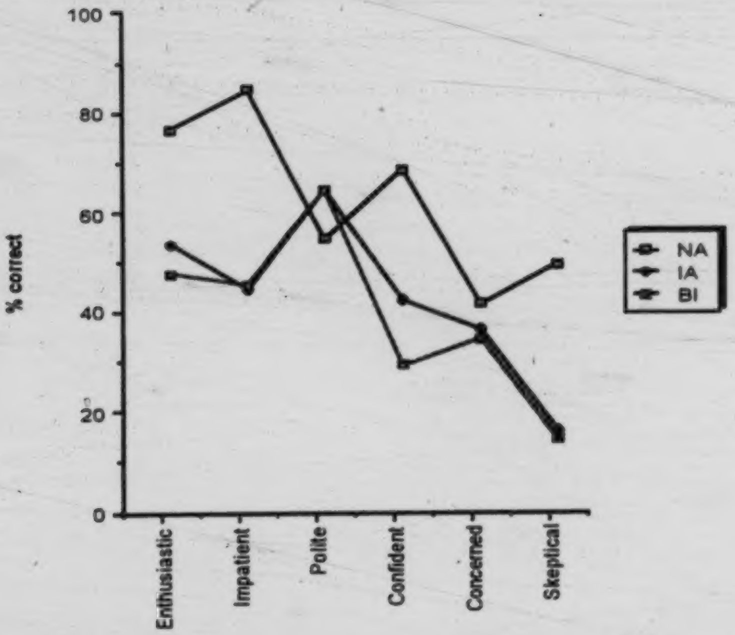


Figure 5-4 Interaction of Attitude type by Proficiency level-Subjects analysis

In this interaction, the native English listeners demonstrated a different pattern of behaviour compared to the two EFL learner groups, who behaved quite similarly. The largest differences in perception accuracy between English listeners and the EFL learners occurred with Impatient, Confident , Enthusiastic and Skeptical. The closest matches were between Polite and Concerned.

The items-analysis also showed that the variable of Attitude type was significant at *F*(5,12)= 9.82, *p*=.0006. The interaction of Proficiency level with Attitude type was also significant in this analysis at *F*(10,24) =5.07, *p*=.0005. This interaction, which is very similar to that of the subjects analysis can be seen in Figure 5.5 below.

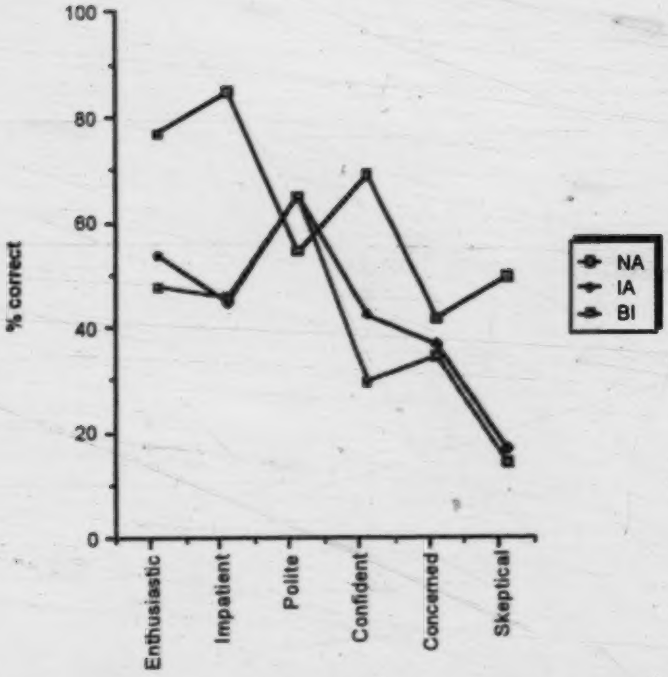


Figure 5-5 **Attitude Type by Proficiency Level Interaction-Items Analysis**

Question 3: Does the position of the test utterance in the task make a difference to perception accuracy? That is, will the first, second or third time that an attitude is heard provide an advantage or disadvantage to listener accuracy?

The goal of this question was essentially that of a methodological check. It might be possible that there is a practice effect for the listener such that hearing the same attitude more than once will provide a benefit to interpreting it correctly. It is also possible that a participant would need time to get used to the task, only deciding on the correct answer after hearing the same attitude twice or even three times.

The main effect of Position of the attitude in the task was not significant (*F*(2,170) =2.53, *p*=.083). In other words, the order in which in the questions occurred in the task did not significantly affect the answer given by participants. The interaction of Position by Proficiency Level was not significant either (*F*(4, 170)=.219, *p*=.083). On the other hand, the interaction of Attitude by Position was significant (*F*(10, 850)=2.42, *p*=.011). As can be seen from Figure 5.6 below, Concerned and Polite tended to receive higher scores the farther along in the order they were. This advantage of repetition, or practise effect, did not hold for all the attitudes however. Confident and Impatient actually received poorer accuracy scores the farther along in the order they were. It is as if the listeners grew more sure of their perceptions in regards to the more passive attitudes, such as Concerned and Polite, but less sure of the more active attitudes, such as Confident and Impatient, as the task progressed.

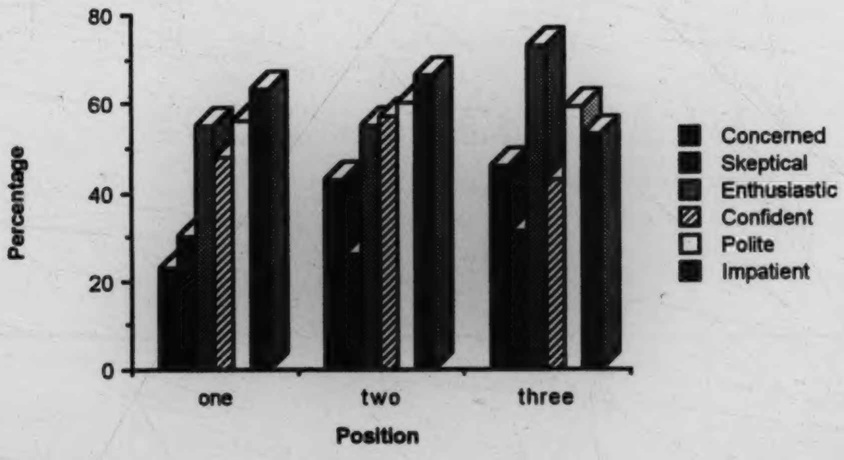


Figure 5-6 Attitude by Position Interaction

Question 4: Can the Russian learners of English perceive the difference between positive and negative attitudes?

The question of whether or not respondents were able to perceive the difference between positively-valenced (Confident, Polite, Enthusiastic) and negatively-valenced (Concerned, Skeptical, Impatient) attitudes was investigated in an ANOVA using Mood (2 levels, Positive, Negative) as the Between factor. Over all three proficiency levels, there was a significant difference ($F(1,85) = 25.46$, $p = .0001$ in Mood and a significant interaction at the .05 level between Mood and Attitude ($F(2, 170) = 4.57$, $p = .012$). All three groups found it easier to perceive the Positive attitudes of Enthusiastic, Confident and Polite as positive, at an average 56% accuracy, than the Negative attitudes of Concerned, Impatient and Skeptical as Negative, at an average accuracy of 42%. The interaction between Mood type and Proficiency level was not significant ($F(2,85) = 2.3$, $p = .106$).

5.3.1 Errors

Tables 5.3 and 5.4 below show the matrix of frequency of responses for the native English listeners and the EFL learners respectively. The attitudes actually presented in the task are along the vertical axis. The frequencies of the participants' confusions are along the horizontal axis.

Table 5:3 Native English listener accuracy and confusion matrix (N=38)

	Perceived					
Presented	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	46	6	1	20	22	19
Confident	4	76	6	14	7	7
Enthusiastic	0	17	85	17	0	0
Impatient	2	10	5	94	0	3
Polite	43	0	0	0	60	11
Skeptical	41	1	1	2	13	56

Table 5:4 EFL learner accuracy and confusion matrix (N=50)

	Perceived					
Presented	Concerned	Confident	Enthusiastic	Impatient	Polite	Skeptical
Concerned	51	18	6	34	15	26
Confident	24	57	15	23	7	24
Enthusiastic	6	17	76	43	4	5
Impatient	9	46	13	64	0	18
Polite	31	6	5	3	96	9
Skeptical	22	10	22	4	71	21

Overall, the English and Russian errors patterns are similar, and, as in Experiment 4, both Russian and English listeners tended to confuse the same attitudes for each other. For both language groups, for example, Polite tended to be mistaken for Concerned, while Concerned tended to be mistaken for Impatient. The exception is the perception of Skeptical for Russian listeners, the majority of who perceived it as Polite. Table 5.5 below shows the most frequent wrong choice for each attitude for both groups of listeners.

Table 5:5 Sound + Conceptual level confusions- English & Russian listeners

Attitude	English listeners % frequency	Russian listeners % frequency
-Concerned	+Polite 19%	-Impatient 23%
-Skeptical	-Concerned 36%	+Polite 47% +Enthusiastic 15%
-Impatient	+Confident 9%	+Confident 31%
+Enthusiastic	-Impatient 15% +Confident 15%	-Impatient 29%
+Polite	-Concerned 38%	-Concerned 21%
+Confident	-Impatient 12%	-Concerned 16% -Skeptical 16%

In terms of most common mistake, Impatient and Concerned are chosen quite consistently as the wrong choice by both language groups. Concerned is especially popular as the wrong choice for Skeptical and Polite. These latter three utterances do not resemble each other in terms of prosodic information; the tag question is on a falling pitch for Concerned, but on a rising one for both Skeptical and Polite, for example. Furthermore, only the Russian listeners tended to confuse the two attitudes of Polite and Skeptical. Interestingly, these are the two attitudes judged by English listeners to sound the most similar in Experiment 3, and yet the English listeners in the present experiment did not make this perception error.

Skeptical, Polite and Concerned do, however, share a placement nearer the passive end of the hypothetical conceptual scale constructed in Chapter two. This conceptual passivity, in comparison to the other three more conceptually active attitudes of Confident, Enthusiastic and Impatient, may be making them clump together in terms of mistaken perception. These latter three more conceptually active attitudes do in fact get confused for each other more often than for their passive counterparts. For example, Impatient is mistaken for Confident, and Enthusiastic for Impatient by both language groups. The only exception to this is the tendency for Russian listeners to mistake Confident as Concerned or Skeptical. This gives Concerned status as almost the 'default' mistaken choice.

These clusters of confusions actually match the potential confusion clusters of Experiment 1 very well. Native speakers of both languages predicted, based on conceptual information, that Impatient, Enthusiastic and Confident would tend to be confused with each other, as would Polite, Skeptical and Concerned. Except for the confusion of Confident with Concerned and Skeptical, and Concerned with Impatient by the Russian listeners, these triads of confusions have actually reappeared when both conceptual and prosodic information was available to the listener. English listeners especially, tended to confuse Polite, Skeptical and Concerned with each other, and Impatient, Enthusiastic and Confident with each other. The Russian EFL learners were not so consistent in this trend, however they did maintain components of these triads by confusing Enthusiastic as Impatient, Impatient as Confident, and Skeptical as Polite. These results provide an indication that having the attitude choices in front of them, and by association the conceptual meanings that go with them, influenced how the participants grouped together the attitudes into the respective confusion patterns.

Also indicated in Table 5.7 is the mood or valence of each attitude. From this information, it appears that negative attitudes, such as Concerned and Impatient, were the mistake of choice for the positive attitudes of Enthusiastic, Polite and Confident for both English and Russian listeners. For the negative attitudes, however, both negatively- and positively-valenced attitudes placed near the top for most frequent incorrect choices. These mixed-valence confusions provide corroboration for the observation that, as in the production/perception Experiment 4, the learners of English are not making special attitudinal or intonational transfer errors. Except for Polite and Skeptical, they are confusing the same positive and negative moods in general, and the same attitudes in particular, that the English listeners are making.

5.4 *Discussion*

The methodological improvements in this experiment over the experiment in Chapter four have proven fruitful. The average accuracy for the native speakers of English was 10% higher than in Experiment 4. The Russian learner perception accuracy was comparable at an average of 40% for the two learner groups to the RussL-EngS accuracy of 42% from Experiment 4. While the average percentage correct by these two groups of Russian listeners was comparable, the average percentage correct for the test utterance in its original form as a Concerned yes-no question in Experiment 4 was 64% for the RussL-EngS pair. In its reincarnation as a tagged yes-no question in Experiment 5, the average percentage correct was 34%. Nevertheless, the goal of creating a more homogenous set of stimuli was accomplished as the range of percentage accuracy for the EFL learners was 49% over all six attitudes, but 72% for RussL-EngS (in Experiment 4) over all attitudes and syntactic types.

The major change in results for Russian listener accuracy was in the order of accuracy of the target attitudes. In Experiment 4, the best perceived attitude by the RussL-EngS pair was Skeptical, and the worst Confident. In Experiment 5, in contrast, Skeptical switched rankings to be the worst perceived of the six, while Confident slipped to 5th place in the rankings. We know now that while perception of the sound of the attitudes alone and perception of the concept of the attitudes alone does not match completely the perception of the sound + concept together, that native English and Russian listeners have a fairly accurate idea which attitudes will be confused when the actual expression of attitudes to listeners occurs.

We also know from this experiment that at the sound + concept level, Russian and English listeners tend to perceive the six target attitudes in ways that are more similar across the language boundary than they are different. The major differences tend to lie in the degree of accuracy, not the type of accuracy.

6. Summary and Discussion

6.1 Summary

When considered as a whole, the results from the five experiments reveal a surprisingly high degree of comparability both across the factors of conceptual information and linguistic information, and across the two languages, Russian and English.

6.1.1 English respondents

For native speakers of English, predicted confusions among attitudes based on information from the conceptual identity of each attitude (Experiment 1) matches the similarities based solely on prosodic information (Experiment 3) very well. That is, the two most similar-sounding attitudes, Polite and Skeptical, are also two of the attitudes that tend to be confused when only conceptual information is a factor in similarity/confusion judgements. The second most similar-sounding pair, Impatient and Enthusiastic, are also two attitudes that are predicted to be confused based on conceptual information. Furthermore, these two pairs of similar-sounding attitudes are also located together as pairs at opposite extremes of the two-dimensional space constructed from conceptual similarity/difference information in Experiment 2. Another point of similarity between the sound-only judgements and concept-only judgements is that the attitudes judged to be most different-sounding, Confident and either Concerned, Polite or Skeptical, never occur together in the confusion patterns at the conceptual level. Instead, in conceptual judgement patterns, Confident is confused most often with Impatient or Skeptical.

A comparison of predicted confusion patterns from native English judgements in the conceptual level task (Experiment 1), with those from the perception task involving judgements incorporating both sound and conceptual meanings (Experiment 5), also shows very good comparability. Almost all confusions among the six attitudes match at these two levels. At both levels of perception, Concerned is mistaken for Polite, Skeptical for Concerned, Enthusiastic for Impatient or Confident, Polite for Concerned and Confident for Impatient. The similarity judgements at the conceptual level (Experiment 2) are also comparable to a great extent. Four pairs of six, all considered to be most similar conceptually to each other (Enthusiastic and Impatient, Polite and Concerned, Concerned and Polite, Skeptical and Concerned), are the same pairs that are most confused by the English listeners at the combined concept + prosodic level of interpretation (Experiment 5).

The results of the sound-only perception task (Experiment 3) versus the Sound + Concept level (Experiment 5) provide the least close fit for English listeners in terms of how the confusions and similarities among attitudes compare to each other. In this data, the cardinal pair of Polite and Skeptical, the most-similar sounding pair for 78% of respondents, is not present in the Sound + Concept confusions of Experiment 5, nor in Experiment 4 when English listeners attempt to interpret either English- or Russian-accented attitudes. This seems intuitively odd at first, as the "how it sounds", i.e., the intonational features of the utterances in Experiment 3 and 5, is identical in both of these perception tasks, as is the lexical and syntactic content. However, information about the attitudes and therefore their conceptual identities, the factor missing from the 'sound only' judgements, is likely serving as a partial communicative cue for the English listener as to what to expect from the speaker, thereby providing a way to distinguish Polite and Skeptical from each other. In other words, the conceptual information is overriding the fact that they sound very similar. Although these two attitudes may be 'potentially' confused with each other at the concept only level (Experiment 1), their placement at opposite ends of the conceptual scale constructed from scalar distance frequencies, Polite at the Positive end and Skeptical at the negative end, provides enough of a conceptual distinction for the English listeners. It therefore appears that the conceptual identity of the attitudes is the dominant distinguishing factor when both prosodic + linguistic factors and conceptual identity factors occur concurrently.

6.1.2 Russian respondents

For the Russian participants, a comparison of the Sound + Concept judgements of Experiment 5 and the conceptual meanings of Experiment 2 also show a number of similarities. Four of the six pairs considered most similar at the Concept only level match the typical confusions at the Sound + Concept level. These are Concerned as Impatient, Confident as Skeptical, Enthusiastic as Impatient and Polite as Concerned. The similarity and confusion matches between Experiment 1 and 2 and Experiment 4 are less strong. In fact, there are no matches in confusion by the Russian listener-English speaker pair, and the only point of similarity between Russian listener-Russian speaker and their conceptual confusions is the confusion between Polite and Concerned.

The main point of similarity among the various groups of Russian learners tested was in their treatment of Polite and Skeptical. Unlike the English listeners and speakers, these non-native speakers of

English confuse Polite with Skeptical and/or vice versa at both the conceptual level and the sound + concept level in four experiments of the five. The Russian listener-English speaker pairs (Experiment 4) and the EFL learners in St. Petersburg both tended to confuse Skeptical for Polite or vice versa. This result could be a reflection of two points of similarity; one, their sharing of conceptual space at the weak or passive end of a semantic dimension, and two, their similar sounding intonation contours, as if they were mirroring the English listeners' judgements of Polite and Skeptical as sounding most similar. It may be that for the Russian listeners, the resemblance between these two attitudes prosodically may be overriding the semantic factor that keeps these two attitudes apart on at least one of the two conceptual dimensions.

6.1.3 Cross-linguistic comparison

The other basic comparison of results is across languages. As we have seen, the match across Russian and English at the level of concept (Experiments 1 and 2) is very close. The patterns of confusions are very close, tending to cluster together into two triads of Concerned, Polite and Skeptical, on the one hand, and Confident, Impatient and Enthusiastic, on the other, at opposite ends of one and two dimensional plots. In terms of the conceptual similarity judgements, the distances and grouping of the six attitudes are also fairly similar in that Polite and Skeptical are placed at opposite ends of the conceptual scale from Enthusiastic and Impatient by both language groups. Confident is opposed to Concerned in terms of polarity as well, albeit at different ends of the spectrum for English and Russian.

The piece of the sound puzzle that is missing for Russian listeners can be inferred to a certain degree from the pedagogical literature on the differences between English and Russian grammatical intonation, and the empirical results from Russian speaker production in Experiment 4. Russian and English intonation patterns on yes-no questions have a salient difference in the location of rises and falls in pitch. Nevertheless, Experiment 4 results indicate that Russian listeners' perception of yes-no questions at 47% accuracy (different in intonation contour in Russian and English) actually poses less of a perception problem than wh-questions (at 30%), and about the same degree of difficulty as statements at 48% accuracy (quite similar in intonation pattern in Russian and English), when expressed by English speakers. At an intermediate level of English proficiency then, Russian learners of English have largely learned to filter out the grammatical intonational difference when listening to English attitudes, except with wh-questions. Difficulties caused by L1 transfer are thus most evident when wh-question intonation patterns are involved. This pattern is the culprit for much of the perception and production misunderstandings and miscues between Russian and English in this experiment.

When both prosodic/intonational and conceptual cues are provided to Russian and English listeners in Experiment 5, it is Polite which moves around the most in the accuracy hierarchy. It is the most well-perceived attitude by native Russian listeners at 63%, while tied as the third worst perceived, at 53%, by native English listeners. In raw accuracy terms then, there is a 10% difference between the two groups. For some reason, compared to the other attitudes, Polite is a salient attitude for the Russian learners. There may be an extra emphasis placed on getting politeness 'right' for these respondents, a motivation to increase perception accuracy for this attitude in particular compared to native English listeners. As learners of English as a second language, these students are ostensibly working towards and looking forward to engaging successfully in verbal exchanges with English speakers, and therefore are willing to enter into the social contract that the attitude Polite entails between speaker and listener. They may be extra sensitive, therefore, to establishing this attitude as a prelude or springboard to expressing and perceiving other attitudes. The English listeners, on the other hand, do not have exchanges with non-native speakers on their minds in this task. Being Polite may not be uppermost on their agenda, especially considering the effort it might take on the part of both listener and speaker to successfully negotiate meaning generally, and attitudinal meaning in particular, in a conversation. This may be why other attitudes, such as, Impatient, Enthusiastic and Confident are more salient to these English listeners, both prosodically and perhaps semantically, and therefore obtain the highest accuracy scores. What comes to the foreground for these listeners is the activity at the prosodic and conceptual level of Impatient, Enthusiastic and Confident, which overrides the less active attitude of Polite.

Nevertheless, the confusion patterns are comparable across the two languages in this Sound + Concept investigation, as three of six confusions match each other across Russian and English in Experiment 5. Impatient is most often mistaken for Confident, Enthusiastic for Impatient, and Polite for Concerned by both Russian and English listeners. As well, both language groups consistently choose Impatient and Concerned as the wrong choice when both prosodic and attitudinal information is present.

Russian listeners mistake Confident for either Concerned or Skeptical, whereas English listeners mistake Confident for Impatient. This result coincides neatly with English judgements of conceptual similarity that place Confident on the same semantic axis as the negative attitudes of Impatient and Skeptical, whereas for the Russians, Confident is considered less negative in meaning, and placed along the same axis as Polite and Skeptical.

Finally, a high degree of comparability in mistakes across Russian and English also holds in Experiment 4, in which the lexico-grammatical information is much more varied. English and Russian listeners to native English attitudes confuse the same 4 attitudes the same way (i.e., Impatient for Concerned, Confident for Polite, Enthusiastic for Skeptical, and Concerned for Polite); English and Russian listeners to Russian-accented English attitudes confuse 4 of the 6 attitudes the same way (i.e., Confident for Impatient, Concerned for Polite, Impatient for Concerned, Polite for Concerned). Under these conditions, Skeptical behaves the least predictably of the six, being confused with the highest number of different attitudes. Concerned and Impatient, on the other hand, once again behave as predictable mistakes of choice for both language groups.

6.2 *Discussion*

Overall, given the potential for prosodic and/or conceptual mismatches, the Russian and English listeners in these experiments are behaving remarkably similarly. Their perceptions of the conceptual relationships of the target attitudes to each other are more similar than different. The mistakes of both language groups at the most linguistically-natural level of interpretation of these attitudes, the Sound + Concept level, are also very similar in type, whether the grammatical-lexical information is included as a variable, or whether it is kept constant. In terms of success in perception and production of the six attitudes, it is the degree of success that differs most significantly by the two different language groups, rather than the type of success.

These differences in patterns of perceptual and production between the learners and native speakers of English lend themselves mainly to a developmental explanation, rather than one that mostly blames L1 transfer. These Russian speakers and listeners of English are not transferring widely divergent attitudinal concepts into English, thereby causing transfer errors. They are also not transferring completely different attitudinal prosodic features, since at the combinatory level of sound + concept, Russian and English perceptual accuracy and mistake patterns are more similar than different. The most obvious differences in intonation features between Russian and English occur at the grammatical level among yes-no questions and wh-questions. Learners have the most difficulty filtering out cross-linguistic differences in wh-question and some yes-no question intonational patterns. Overall, however, the type of successes that these learners are having in perceiving attitudes coincides with Taylor's (1975) claim that intermediate students make fewer transfer errors than beginners do, and instead make more overgeneralization or developmental errors. In other words, these L2 learners are simply not as good as native English speakers at perceiving and producing these six attitudes. This raises the interesting question of which attitudes learners overgeneralize in the production and perception of attitudinal intonation. The mistakes that occur when listeners and speakers are able to access both the attitude's conceptual and prosodic identity seem to point to an overgeneralization of Concerned and Impatient as first choice for an incorrect perception. And when the lexical and grammatical variation is trimmed down for Experiment 5, Concerned and Impatient again both show up as mistakes of choice for 4 of 6 attitudes for both Russian and English listeners.

So, how do these results fit in with the intuitive, experimental and pedagogically empirical data which claim that cross-cultural differences in intonational and prosodic features will lead non-native speakers of English to misunderstand and miscommunicate English attitudes and emotions? We are not forced by the present experimental results to abandon this basic assumption and empirically-validated conclusion. We do, however, have to refine its terms and consequences in reference to the experimental goals set out in the first chapter.

Most importantly, we have strong evidence for the cross-linguistic nature of the six test attitudes. At the conceptual level, the Russian and English identities of Concerned, Confident, Enthusiastic, Impatient, Polite and Skeptical are very similar in themselves and in their relation to each other based on similarity and confusability judgements. These conceptual similarities hold fairly well when lexico-grammatical information is added to these identities in their actual expressive forms. Having said this, however, the addition of lexico-grammatical information of various types worked in favour of the perception and production of some attitudes and not others. The combination of yes-no question syntactic form and the attitude Confident was an unnatural pairing and fared badly, for example; the pairing of statement form and Confident was a natural pairing and fared very well.

This wide variation in perception and production accuracy, resulting from various pairings of syntactic form, attitude type and lexical information, was largely cancelled out when the lexico-grammatical information in the attitudinal expression was strictly limited. Some attitudes which did not fare well in the pairing with a yes-no question intonation pattern gained a lot of ground in the more limited lexical/syntactic context, even as a tagged yes-no question. Enthusiastic, for example, which hovered around the 20% range for Russian listeners in the context of lexical and syntactic variation, reached the 49% mark in the more limited perceptual context; Confident as well, went from 20% accuracy as a yes-no question to 35% as a tagged yes-no question. On the other hand, the intuitively natural pairing of yes-no questions with Skeptical and Concerned, for example, both of which scored high in the joint perception/production task, were reduced to worst and second worst when the variation in utterance type was taken away. Polite actually improved in perceptual accuracy status with the deletion of the lexico-grammatical variation in content and prosody from middle of the pack to first place. It is noteworthy that it is not simply that the final sound + concept perception task was significantly easier for the Russian participants (although it *was* for the English participants) since the average accuracy rate stayed roughly the same, in the 40% range.

These results strongly uphold the conclusion that a description of an 'attitudinal foreign accent' must take into account not just the prosodic features associated with each attitude, but the intonational features associated with a particular syntactic form. We saw that the interaction between grammatical intonational meanings and attitudinal meanings has a significant impact on how well Russian speakers of English are able to communicate their attitudinal message in English, and how well they interpret the same attitudes.

Further evidence of the impact of grammatical intonation type on perceiving English attitudes for Russian listeners occurs in the discrepancy between the types of confusions made in Experiment 4 versus Experiment 5 by Russian listeners. Confusions from the first conceptual identity task and the tagged yes-no question task matched in four of six confusions. However, when the intonational features associated with each attitude combine with the intonational features of syntactic structure types, the parity in confusions is lost. There are no matches between the concept-only level and sound + concept perception/production task for Russians listening to English attitudes. The experimental load on the listener and speaker, be they Russian or English, was obviously much higher when there were three syntactic intonation contours interacting with attitudinal information also carried by prosody. The additional linguistic information changes not only the amount of perceptual accuracy, but the type, as evidenced by the considerably different accuracy orders between Russian and English listeners in Experiment 4. Furthermore, the impact of grammatical intonation on perception accuracy holds not just for Russian respondents, but also for English respondents.

Given the high degree of linguistic cross-over of the identities of these six attitudes at both the conceptual and prosodic level, where exactly is the 'attitudinal foreign accent' that is supposedly causing all the problems for this particular kind of non-native English speaker? The difficulties these L2 learners are having cannot be blamed on differences in the conceptual identities of these attitudes in Russian and English. There is not even evidence of transfer from a particular attitude in Russian to point a finger at. The learners are simply not so good at perceiving some attitudes, and are better at others, depending on how much intonational information there is in the utterance. If there is too much of a conflicting kind, such as statement intonation for an expression of skepticism, then correct perception is more difficult, but for both the Russian and English speakers. The one intonational culprit this series of experiments *has* identified, thereby supporting previous experimental and pedagogical evidence, is the wh-question intonation contour, which are significantly worse for Russian respondents to handle than for English respondents.

Cruz-Ferreira (1987) concludes from her research on non-native interpretive strategies for intonation meaning that, "Universal meanings may be associated with certain uses of pitch across languages, but particular meanings arise from the interaction of intonation with other linguistic systems in each language and these are to a large extent arbitrary" (p. 119). The present experimental results confirm the arbitrariness of these 'particular meanings', in so far as the interpretation of attitudes depends on a variety of prosodic, intonational, conceptual and linguistic factors in any given listener-speaker interaction. The native English speakers and Russian learners of English in the experiments are making use of these factors in similar ways, resulting in very similar Russian and English language-particular profiles. It is evident that Russian learners of English have already sorted out the particular attitudinal intonation meaning differences to a large extent and make many of the same mistakes, to a greater degree, that English listeners do in interpreting the same

English attitudes. The attitudinal pitfalls that Russian learners bring to this task from Russian are associated with the negative emotional overtones of incorrect grammatical intonation. For ESL learners of other L1 backgrounds, the complex interaction of grammatical intonation, attitudinal prosody, semantic/lexical information, and conceptual identities of each attitude will provide unique attitudinal language profiles. The interaction of conceptual and linguistic identities guarantees a unique mix of acquisition problems for ESL learners that will be both developmental in nature, such as those evidenced by the Russian learners investigated here, and L1 transfer-based, depending on the conceptual and intonational fit between the L1 and English as the L2. A conceptual misfit between the L1 and English is a possible source of L1 transfer in the expression of attitudes, as are individual differences in attitudinal or grammatical intonation features, and their interaction.

When the linguistic and prosodic information available to the listener is more complex or varied, there is no less parity across the language border between Russian and English. First of all, the similar conceptual identities are helping Russian learners deal with English attitudes. As well, formal instruction combined with critical listening to English intonation may have helped learners overcome many of the grammatical and attitudinal intonation differences between Russian and English. For these respondents at least, no particularly salient cross-linguistic intonational/prosodic disparities among attitudes are rearing up and playing havoc with the accurate perception of English attitudes. Instead, these English learners take as much advantage as possible of both the cross-linguistic similarities at various levels, and previous learning or acquisition of English attitudinal intonation, when expressing and interpreting English attitudes.

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Appendix A

0. Surprised/с удивлением (Practice)

Todd has worked with Bill for many years. Todd has always thought that Bill was the same age as him, 33. Yesterday Todd hears someone at work say Bill is a grandfather. Todd says in surprise,
"Bill is much older than me." *(Statement)*
"How much older is Bill than me?" *(Wh-question)*
"Is Bill much older than me?" *(Yes-no question)*

1. Concerned/Озабочено

Scott and his brother have promised to water their mother's plants while she is away. They forget and when they go to her apartment, the plants are almost dead. They both wonder if the plants will survive. Scott says to his brother with concern,
"We should water the plants every day." *(Statement)*
"How often should we water the plants?" *(Wh-question)*
"Should we water the plants every day?" *(Yes-no question)*

2. Confident/Самоуверенно

Peter is a young and inexperience businessman. He is at a conference where he wants to impress his colleagues. The other businessmen are discussing when dinner is served. Peter says to them confidently,
"They serve dinner at 7 o'clock this evening." *(Statement)*
"At what time are they serving dinner this evening?" *(Wh-question)*
"Do they serve dinner at 7 o'clock this evening?" *(Yes-no question)*

3. Enthusiastic/С энтузиазмом

Today is Tom's birthday. His sister Gloria comes home from work with a big, strangely-shaped box. Tom really hopes it is a present for him. He says to his sister enthusiastically,
"That's a very strangely-shaped box." *(Statement)*
"Who is that strangely-shaped box for?" *(Wh-question)*
"Is that strangely-shaped box for me?" *(Yes-no question)*

4. Impatient/Нетерпеливо

John is waiting for his sister to go to the theatre with him. He has been waiting for half an hour. He watches her look for her purse, then her coat, then her car keys. John says to his sister impatiently,
"The car keys might be on the table." *(Statement)*
"Where could the car keys be?" *(Wh-question)*
"Could the car keys be on the table?" *(Yes-no question)*

5. Polite/Вежливо
Linda meets an acquaintance in the hall at a hotel. They discover that they know some of the same people. They discuss someone they both know, a woman names Maya. Linda says to the acquaintance politely,
"She has three cats now." *(Statement)*
"How many cats does she have now?" *(Wh-question)*
"Does she have three cats now?" *(Yes-no question)*

6. Skeptical/Скептично
Richard's friend David is a very lazy musician. One day David tells Richard that he has started practising regularly and plays every day for an hour. Richard doesn't believe it. He says to David skeptically,
"You practised every morning this week." *(Statement)*
"How many mornings did you practise this week?" *(Wh-question)*
"Did you practise every morning this week?" *(Yes-no question)*